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<b>Term</b>	<b>Documents</b>
ELECTRET.DWPI,TDBD,EPAB,JPAB.	2809
ELECTRETS.DWPI,TDBD,EPAB,JPAB.	300
HYDROCHARG\$4	0
HYDROCHARGED.DWPI,TDBD,EPAB,JPAB.	1
HYDROCHARGING.DWPI,TDBD,EPAB,JPAB.	1
(HYDROCHARG\$4 AND ELECTRET).JPAB,EPAB,DWPI,TDBD.	1

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Today's Date: 4/3/2001

<u>DB Name</u>	<u>Query</u>	<u>Hit Count</u>	<u>Set Name</u>
JPAB,EPAB,DWPI,TDBD	electret and (hydrocharg\$4)	1	<u>L6</u>
USPT,PGPB	electret and (hydrocharg\$4)	15	<u>L5</u>
USPT,PGPB	electret same (water or H2O)	128	<u>L4</u>
JPAB,EPAB,DWPI,TDBD	L2 and (water or H2O)	7	<u>L3</u>
JPAB,EPAB,DWPI,TDBD	electret and (condens\$6 or vapor)	171	<u>L2</u>
USPT,PGPB	electret and (condens\$6) and dry\$4	86	<u>L1</u>



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Term	Documents
ELECTRET.DWPI,TDBD,EPAB,JPAB.	2809
ELECTRETS.DWPI,TDBD,EPAB,JPAB.	300
CONDENS\$5	0
CONDENS.DWPI,TDBD,EPAB,JPAB.	713
CONDENSA.DWPI,TDBD,EPAB,JPAB.	93
CONDENSAB.DWPI,TDBD,EPAB,JPAB.	18
CONDENSABL.DWPI,TDBD,EPAB,JPAB.	11
CONDENSABLE.DWPI,TDBD,EPAB,JPAB.	2664
CONDENSABLEE.DWPI,TDBD,EPAB,JPAB.	1
CONDENSABLES.DWPI,TDBD,EPAB,JPAB.	108
(ELECTRET AND (CONDENS\$5) ).JPAB,EPAB,DWPI,TDBD.	133

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Derwent World Patents Index  
BM Technical Disclosure Bulletins

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electret and (condens\$5)

[Clear](#)**Search History****Today's Date: 4/3/2001**

<u>DB Name</u>	<u>Query</u>	<u>Hit Count</u>	<u>Set Name</u>
JPAB,EPAB,DWPI,TDBD	electret and (condens\$5)	133	<u>L6</u>
JPAB,EPAB,DWPI,TDBD	electret and (condens\$5) and (dry\$4)	0	<u>L5</u>
JPAB,EPAB,DWPI,TDBD	electret and (condens\$5) and (dry\$4) and (vapor or vapour)	0	<u>L4</u>
USPT,PGPB	electret and (condens\$5) and (dry\$4) and (vapor or vapour)	40	<u>L3</u>
USPT	6119691	1	<u>L2</u>
USPT	6068799	2	<u>L1</u>

L2 2923250 SEA FILE=HCAPLUS ABB=ON PLU=ON (VAPOR OR VAPOUR OR LIQUID?  
OR WATER OR FLUROCARBON? OR AQUEOUS?)  
L3 2917 SEA FILE=HCAPLUS ABB=ON PLU=ON ?ELECTRET?  
L4 187 SEA FILE=HCAPLUS ABB=ON PLU=ON L3(S)L2  
L5 5 SEA FILE=HCAPLUS ABB=ON PLU=ON CONDEN? (L) L4

=> d max 1-

YOU HAVE REQUESTED DATA FROM 5 ANSWERS - CONTINUE? Y/(N):y

L5 ANSWER 1 OF 5 HCAPLUS COPYRIGHT 2001 ACS  
AN 1989:600748 HCAPLUS  
DN 111:200748  
TI Reducing the hazard of dust explosions: agglomerate the fines, cool off the hot spots, collect the fines at the point of origin, neutralize local electrostatic charges  
AU Hoenig, Stuart A.  
CS Dep. Electr. Comput. Eng., Univ. Arizona, Tucson, AZ, 85721, USA  
SO Plant/Oper. Prog. (1989), 8(3), 119-28  
CODEN: POPPDE; ISSN: 0278-4513  
DT Journal; General Review  
LA English  
CC 59-0 (Air Pollution and Industrial Hygiene)  
Section cross-reference(s): 48  
AB A review, with 4 refs., on preventing dust explosions, including the removal of floating dust by filtration, cyclones, water fogging, electrostatic water fogging, dry electrostatic charging and collection, and electrets, as well as the use of dry ice snow, which reduces the temp. of the combustible materials or hot spots, induces local condensation of water to help wet the dust, and excludes the O necessary for combustion.  
ST review dust explosion prevention; safety dust explosion prevention review  
IT Explosion  
(of airborne dust, prevention of)  
IT Dust  
(airborne, explosions of, prevention of)

L5 ANSWER 2 OF 5 HCAPLUS COPYRIGHT 2001 ACS  
AN 1986:517196 HCAPLUS  
DN 105:117196  
TI Condensation-nucleus counter. An old measuring method from a modern viewpoint  
AU Haller, P.; Hofmann, M.  
CS Gruppe Ruestungsdienste, AC-Lab. Spiez, Spiez, CH-3700, Switz.  
SO Swiss Chem (1986), 8(6), 25-7  
CODEN: SCHEQ; ISSN: 0251-1703  
DT Journal  
LA German  
CC 48-1 (Unit Operations and Processes)  
Section cross-reference(s): 59  
AB Condensation nucleus or dust particle counters are based on a satn. chamber with various fluids, such as BuOH, a cooling chamber for drop formation (av. size .apprx.10 .mu.), and a photodetector. The aerosol contains dust particles of 0.005-1 .mu. diam. The quality of the filter materials, used for air cleaning, is the exponent of  $P = P_1 \cdot v^x$ , where  $P$  and  $P_1$  are the penetration at a selected velocity and 1 cm/s, resp., and  $v$  is the flow velocity. For particle diams. of 109, 125, 176, and 220 nm the abs. and relative permeation data are tabulated as functions of the velocity. The 5 filters were Grade 10, 100/1, 100/z, Irosa, and Electret and the test aerosols Latex (laser particle counter), PtOx (25 nm), lab. air, and residual water nuclei.

• The penetration in 10-6 was 5, <300, <100, and 400 for the 1st 4 filters using the dioctyl phthalate test.  
 ST condensation nucleus counter; filtration air testing  
 IT Air conditioning  
     (filtration, testing of, condensation-nucleus counter in)

L5 ANSWER 3 OF 5 HCAPLUS COPYRIGHT 2001 ACS  
 AN 1983:532144 HCAPLUS  
 DN 99:132144  
 TI The **electret** effect in **water vapor**  
     **condensates** and phase transformation in ice  
 AU Chrzanowski, J.; Sujak, B.  
 CS Inst. Exp. Phys., Univ. Wroclaw, Wroclaw, 50-205, Pol.  
 SO Acta Phys. Pol. A (1983), A64(1), 107-13  
     CODEN: ATPLB6; ISSN: 0587-4246  
 DT Journal  
 LA English  
 CC 76-9 (Electric Phenomena)  
 AB A correlation between the known phase transformations of ice cryocondensates and the generation of surface charges during condensation process of water vapor onto a cold substrate is discussed. ...The main source of the obsd. electret effect is apparently a low-temp. polarization process of the mol. dipoles. Local changes of the dielec. permittivity assocd. with the 1st-order phase transformations may affect the exptl. obsd. electret effect.  
 ST electret effect ice; phase transformation ice; water vapor condensation surface charge  
 IT Electrets  
     (ice cryogenic condensates, surface charge generation in relation to)  
 IT Dielectric constant and dispersion  
 Dielectric polarization  
     (of ice, cryogenic electret effect in relation to)  
 IT Electric charge  
     (surface, generation of, on ice during condensation, electret effect in relation to)  
 IT 7732-18-5, ice  
 RL: USES (Uses)  
     (electret effect during phase transformations of, at cryogenic temp., surface-charge generation in relation to)

L5 ANSWER 4 OF 5 HCAPLUS COPYRIGHT 2001 ACS  
 AN 1983:506907 HCAPLUS  
 DN 99:106907  
 TI Electrets  
 IN Beach, William F.; Mahoney, Dennis M.  
 PA Union Carbide Corp. , USA  
 SO Can., 11 pp.  
     CODEN: CAXXA4  
 DT Patent  
 LA English  
 IC C08F002-52; C08J003-28  
 CC 42-10 (Coatings, Inks, and Related Products)  
     Section cross-reference(s): 76  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CA 1146907	A1	19830524	CA 1980-359570	19800904
				US 1979-72302	19790904

AB Polymer **electrets** are prep'd. by providing two electrodes in a deposition zone which was connected to an external voltage source, providing a dipolar substituted p-xylylene monomer **vapor** to coat the opposing surface of the electrodes, activating the power source, **condensing** the monomer **vapor** on the electrodes, and polymg. to form **electrets**. Thus, a 500-.ANG.-thick layer of Al was deposited on one side of each of 2 glass slides. A 1000-.ANG.-thick layer of Au was deposited on top of the Al on each slide. These slides were placed parallel to each other in a parylene deposition chamber. The

holder was elec. conductive and was connected to an external power source. One of the Au layers was connected to the pos. side of the holder and the other Au layer to the neg. side of the holder. Cyclic dichloro-di-p-xylylene (25 g) was sublimed and introduced into the deposition chamber to form .apprx.8-.mu.-thick films on each Au electrode. Au and black Au dots (1-cm-diam. and .apprx.1000-.ANG.-thick, black Au slightly thicker) were vaporized on the film surface. The Au coated film had a pyroelec. response of 1.5 nA/W/cm<sup>2</sup> of incident radiation.

ST parylene coating gold electret; chloroxylylene polymn coating gold electrode; pyroelec response parylene electret

IT Coating materials

(dipolar substituted p-xylylene polymers, for gold electrodes)

IT Electric insulators and Dielectrics

(coatings, dipolar substituted p-xylylene polymers, for gold electrodes)

IT 9055-86-1

RL: TEM (Technical or engineered material use); USES (Uses)  
(coatings, for gold electrodes)

IT 7440-57-5, uses and miscellaneous

RL: USES (Uses)  
(electrodes, dipolar substituted p-xylylene polymers and aluminum contg., for electrets)

IT 7429-90-5, uses and miscellaneous

RL: USES (Uses)  
(gold electrodes contg., dipolar substituted p-xylylene polymers coating on, for electrets)

L5 ANSWER 5 OF 5. HCAPLUS COPYRIGHT 2001 ACS

AN 1972:141982 HCAPLUS

DN 76:141982

TI Maaking polypropylene electrets

IN Kodera, Yoichi; Kitamura, Tomosaburo; Sawaguchi, Etsuro

PA Sony Corp.

SO U.S., 6 pp.

CODEN: USXXAM

DT Patent

LA English

IC C23C

NCL 117227000

CC 37 (Plastics Fabrication and Uses)

Section cross-reference(s): 71

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3632443	A	19720104	US 1969-817348	19690418
				JP 1968-28366	19680427
	NL 6906413	A	19691029	NL 1969-6413	19690425
				JP 1968-28366	19680427
	GB 1258638	A	19711230	GB 1969-1258638	19690425
				JP 1968-28366	19680427
	FR 2007144	A5	19700102	FR 1969-13470	19690428
				JP 1968-28366	19680427

AB An electret with a high mol. resistivity and low hydroscopicity was prep'd. from permanently elec. polarized polypropylene (I) [9003-07-0]. Thin I films, optionally vapor deposited with Al or Pd on one surface, were exposed to 50-600 V between 2 electrodes at 65-120.deg. to give electrets used in conversion devices e.g. a condenser microphone.

ST polypropylene electret; shelf life polypropylene electret

IT Electrets

(propene polymer, for conversion devices)

IT 9003-07-0

RL: USES (Uses)  
(electrets, for conversion devices)

L2 2923250 SEA FILE=HCAPLUS ABB=ON PLU=ON (VAPOR OR VAPOUR OR LIQUID?  
 OR WATER OR FLUOCARBON? OR AQUEOUS?)  
 L3 2917 SEA FILE=HCAPLUS ABB=ON PLU=ON ?ELECTRET?  
 L4 187 SEA FILE=HCAPLUS ABB=ON PLU=ON L3(S)L2  
 L5 5 SEA FILE=HCAPLUS ABB=ON PLU=ON CONDEN? (L) L4  
 L15 774 SEA FILE=HCAPLUS ABB=ON PLU=ON L3 AND (DIELECTRIC OR  
 PERSIST? ELECTRIC? OR CONSTANT? (1A) CHARGE?)  
 L16 766 SEA FILE=HCAPLUS ABB=ON PLU=ON L15 AND DIELECTRIC  
 L17 378623 SEA FILE=HCAPLUS ABB=ON PLU=ON ?CONDEN?  
 L18 18 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 AND L17  
 L19 16 SEA FILE=HCAPLUS ABB=ON PLU=ON L18 NOT L5

=> d max 1-  
 YOU HAVE REQUESTED DATA FROM 16 ANSWERS - CONTINUE? Y/(N):Y

L19 ANSWER 1 OF 16 HCAPLUS COPYRIGHT 2001 ACS  
 AN 1997:316613 HCAPLUS  
 DN 126:344048  
 TI More data about **dielectric** and **electret** properties of  
 poly(methyl methacrylate)  
 AU Mazur, Karol  
 CS Department of Physics, Technical University, Zielona Gora, 65-246, Pol.  
 SO J. Phys. D: Appl. Phys. (1997), 30(9), 1383-1398  
 CODEN: JPAPBE; ISSN: 0022-3727  
 PB Institute of Physics Publishing  
 DT Journal  
 LA English  
 CC 36-5 (Physical Properties of Synthetic High Polymers)  
 Section cross-reference(s): 76  
 AB The probe technique and thermally stimulated discharge (TSD) method were  
 used to det. the potential distribution [Vx] in poly(Me methacrylate)  
 (PMMA) **thermoelectrets** polarized at temps. Tp below the glass  
 transition temp. Tg. Current-voltage (j-V) characteristics were obtained  
 of PMMA at temps. Tp < Tg, on the basis of the Vx distribution and some  
 theor. considerations. The j-V characteristic is of sub-ohmic shape,  
 namely  $j = gV^n$ , where  $n < 1$  and  $g = \text{const}$ . On the basis of the above  
 relation, a two-layer **condenser** (PMMA with one side metalized  
 and an air gap) was considered as a model for the formation of PMMA  
**thermoelectrets**. The interfacial charge d. changed nonlinearly  
 with applied polarizing voltage (Vp). The theor. results were compared  
 with exptl. data of PMMA **thermoelectrets**. The problems of mean  
 real charge depth and charge decay in these **electrets** were  
 considered. The isothermal absorption current, j-V, and, charge decay  
 after poling of PMMA and of a PMMA/BaTiO<sub>3</sub> composite are interrelated.  
 ST polymethylmethacrylate **thermoelectret** charge decay; barium  
 titanate PMMA composite **thermoelectret** poling  
 IT Electric insulators  
 Glass transition temperature  
 (**dielec.** and **electret** properties of PMMA and  
 BaTiO<sub>3</sub>/PMMA **thermoelectrets**)  
 IT **Electrets**  
 (**thermoelectrets**; **dielec.** and **electret**  
 properties of PMMA and BaTiO<sub>3</sub>/PMMA **thermoelectrets**)  
 IT 9011-14-7, PMMA 12047-27-7, Barium titanate (BaTiO<sub>3</sub>), properties  
 RL: PRP (Properties); TEM (Technical or engineered material use); USES  
 (Uses)  
 (**dielec.** and **electret** properties of PMMA and  
 BaTiO<sub>3</sub>/PMMA **thermoelectrets**)

L19 ANSWER 2 OF 16 HCAPLUS COPYRIGHT 2001 ACS  
 AN 1986:627766 HCAPLUS  
 DN 105:227766  
 TI Current-voltage characteristic and relation between surface charge density

of PMMA **thermoelectrets** and polarizing voltage  
AU Mazur, Karol  
CS Dep. Phys., Coll. Eng., Zielona Gora, PL-65246, Pol.  
SO Proc. - Int. Symp. Electrets, 5th (1985), 271-6. Editor(s): Sessler,  
Gerhard Martin; Gerhard-Multhaupt, Reimund. Publisher: IEEE, Piscataway,  
N. J.  
CODEN: 55FVAI  
DT Conference  
LA English  
CC 37-5 (Plastics Manufacture and Processing)  
AB A 2-layered **condenser** [poly(Me methacrylate) (I) [9011-14-7]  
1-sided metalized and air-gap] was considered as the formation model for I  
**thermoelectrets**. This model indicated that the interfacial charge  
d. changes nonlinearly with the applied voltage. Using both the  
electrostatic and thermally stimulated current methods and utilizing the  
simplest boundary conditions, the induction charge d. could be roughly  
sepd. into dipolar and real charge d.  
ST charge density polymethyl methacrylate **electret**; polarizing  
voltage polymethyl methacrylate **electret**  
IT **Dielectric polarization**  
(in poly(Me methacrylate) **thermoelectrets**, surface charge d.  
in relation to)  
IT **Electrets**  
(thermo-, poly(Me methacrylate), surface charge of, polarizing voltage  
effect on)  
IT 9011-14-7  
RL: PRP (Properties)  
(**thermoelectrets**, surface charge d. of, polarizing voltage  
effect on)

L19 ANSWER 3 OF 16 HCPLUS COPYRIGHT 2001 ACS  
AN 1986:563153 HCPLUS  
DN 105:163153  
TI Influence of the hydroxyl group rotations on the natural **electret**  
effect (spontaneous dipole polarization) in methyl alcohol cryodeposits  
AU Chrzanowski, Janusz; Dransfeld, Klaus  
CS Fac. Phys., Univ. Konstanz, Konstanz, D-7750, Fed. Rep. Ger.  
SO Proc. - Int. Symp. Electrets, 5th (1985), 393-8. Editor(s): Sessler,  
Gerhard Martin; Gerhard-Multhaupt, Reimund. Publisher: IEEE, Piscataway,  
N. J.  
CODEN: 55FVAI  
DT Conference  
LA English  
CC 76-9 (Electric Phenomena)  
AB The generation of the elec. polarization in MeOH **cryocondensates**  
was investigated during deposition of the layer on a cold substrate of  
temp. within the range 90-175 K. An elec. polarization only appears in  
the .alpha.-phase, below .apprx.158 K, but none at all in the .beta.-phase  
above 158 K. The complete absence of a polarization effect above 158 K is  
probably related to the onset of free rotations of the OH group at 158 K,  
the temp. of the .lambda.-phase transformation. Films of the .alpha.-MeOH  
that grow below T.lambda. are of high cryst. order. Also, the increase of  
the surface charge d. obsd. on lowering the **condensation** temp.  
may be caused by an increasing orientation of the fully polarized  
microcrystallites below T.lambda..  
ST **electret** effect methyl alc; dipole polarization methanol  
IT **Dielectric polarization**  
(**electret** effect, in Me alc. cryodeposits, influence of  
hydroxyl-group rotations on)  
IT 67-56-1, properties  
RL: PRP (Properties)  
(**electret** effect in cryodeposits of, influence of hydroxyl  
group rotations on)

L19 ANSWER 4 OF 16 HCPLUS COPYRIGHT 2001 ACS  
AN 1983:558961 HCPLUS  
DN 99:158961

TI Thermally stimulated depolarization effect in thiourea-formaldehyde condensate  
AU Nalwa, Hari Singh; Vasudevan, Padma  
CS Dep. Chem., Indian Inst. Technol., New Delhi, 110016, India  
SO Polymer (1983), 24(9), 1197-202  
CODEN: POLMAG; ISSN: 0032-3861  
DT Journal  
LA English  
CC 35-4 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 36  
AB A CS(NH<sub>2</sub>)<sub>2</sub>-HCHO resin [25104-08-9] was prep'd. in acid soln. and characterized by elemental and thermal anal. and IR. Thermally stimulated depolarization was studied in resin polarized under various conditions. There were 2 distinct transitions at 94-100.degree. and 122-126.degree.. Polarization-depolarization was related to physicochem. changes in the matrix. Depolarization kinetics (activation energy, relaxation times) of electrets are reported.  
ST thiourea resin depolarization thermal; **electret** thiourea resin depolarization; kinetics depolarization thiourea resin  
IT **Electrets**  
(in thiourea resins, thermal depolarization of, kinetics of)  
IT Crosslinking  
(thermal, in thiourea resins, thermally depolarization in relation to)  
IT Dielectric depolarization  
Dielectric relaxation  
(thermally stimulated, in thiourea-formaldehyde resin)  
IT 25104-08-9  
RL: PROC (Process)  
(thermally stimulated depolarization of)  
  
L19 ANSWER 5 OF 16 HCAPLUS COPYRIGHT 2001 ACS  
AN 1982:96061 HCAPLUS  
DN 96:96061  
TI Thermally stimulated currents in **condenser** polypropylene foils  
AU Gubanski, A.  
CS Inst. Electr. Eng. Technol., Tech. Univ. Wroclaw, Wroclaw, 50-370, Pol.  
SO Mater. Sci. (1981), 7(2-3), 169-74  
CODEN: MSCJDS  
DT Journal  
LA English  
CC 76-9 (Electric Phenomena)  
Section cross-reference(s): 38  
AB Thermally stimulated discharge currents (TSD) from polypropylene (PP) **thermoelectrets** were studied at 150-430K. The influence of the **thermoelectret** formation parameters on the TSD spectrum was investigated. Peaks A1 (260K) and A2 (345K) were induced by dipole depolarization. The presence of peak B (350-380K) was connected with the discharge of a space charge in the sample.  
ST **thermoelectret** polypropylene thermally stimulated discharge; depolarization polypropylene **thermoelectret**; space charge polypropylene **thermoelectret**  
IT Space charge  
(discharge of, in polypropylene foils)  
IT Dielectric polarization  
(of polypropylene foil)  
IT Electric capacitors  
(polypropylene, thermally stimulated currents in)  
IT Electric current  
(thermally stimulation, in polypropylene capacity foil)  
IT **Electrets**  
(thermo-, from polypropylene)  
IT 9003-07-0  
RL: USES (Uses)  
(thermally stimulated space charge currents in thermal elecs. of)  
  
L19 ANSWER 6 OF 16 HCAPLUS COPYRIGHT 2001 ACS  
AN 1982:78461 HCAPLUS

DN 96:78461  
 TI Investigations of the organic **electrets** lifetime  
 AU Lowkis, B.; Motyl, E.  
 CS Inst. Electr. Eng. Fundam., Tech. Univ. Wroclaw, Wroclaw, 50-370, Pol.  
 SO Mater. Sci. (1981), 7(2-3), 251-5  
 CODEN: MSCJDS  
 DT Journal  
 LA English  
 CC 76-9 (Electric Phenomena)  
 Section cross-reference(s): 38  
 AB The lifetime of **electret** elements for **condenser**  
 microphones was studied. The elements were made of  
 polytetrafluoroethylene (Ftoroplast 4) and formed by the breakdown method  
 using a **dielec.** insert. Initial charge densities of 19 nC/cm<sup>2</sup>  
 were obtained. The influence of the thermal annealing upon the charge  
 relaxation parameters was investigated.  
 ST polytetrafluoroethylene **electret** microphone; relaxation  
 dielec polytetrafluoroethylene  
 IT **Electrets**  
 (from polytetrafluoroethylene)  
 IT Electric discharge, chemical and physical effects  
 (in polytetrafluoroethylene **electret** formation)  
 IT **Dielectric** relaxation  
 (polytetrafluoroethylene)  
 IT Acoustic devices  
 (microphones, polytetrafluoroethylene **electrets** for)  
 IT 9002-84-0  
 RL: PRP (Properties)  
 (**electrets** from, properties of)  
  
 L19 ANSWER 7 OF 16 HCAPLUS COPYRIGHT 2001 ACS  
 AN 1980:147486 HCAPLUS  
 DN 92:147486  
 TI **Electret** polyarylates  
 IN Brzozowski, Zbigniew; Kielkiewicz, Jedrzej; Bukat, Krystyna  
 PA Politechnika Warszawska, Pol.  
 SO Pol., 4 pp.  
 CODEN: POXXA7  
 DT Patent  
 LA Polish  
 IC C08G063-68  
 CC 35-3 (Synthetic High Polymers)  
 Section cross-reference(s): 76  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	PL 101336	P	19781230	PL 1975-186163	19751230

AB Arom. **electret** polyesters are prep'd. by interfacial  
**polycondensation** of a 20-100:100-1 mixt. of 4,4'-(2-  
norbornylidene)bis[phenol] (I) or 4,4'-(2-adamantylidene)bis[phenol] and  
4,4'-(dichloroethenylidene)bis[phenol] (II), 4,4'-  
(dichloroethenylidene)bis[3,5-dichlorophenol] or 4,4'-(2,2,2-  
trichloroethylidene)bis[phenol] with isophthaloyl chloride (III) and  
terephthaloyl chloride (IV). Properties of films prep'd. from polyesters  
contg. CCl<sub>2</sub>:C groups are improved by heating at 120-300.degree. for 1-10 h  
or irradn. with x-ray .gamma. or UV radiation. Thus, a copolymer  
[72688-39-2] was prep'd. by interfacial **polycondensation** of I  
0.033, II 0.009, III 0.014, and IV 0.028 mol in aq. NaOH-CH<sub>2</sub>Cl<sub>2</sub> system at  
.ltoreq.20.degree. in the presence of (PhCH<sub>2</sub>)Et<sub>3</sub>N+Cl-. Transparent films  
of thickness 25 .mu.m cast from the copolymer had tensile strength 700-800  
kg/cm, **dielec.** strength 200 kV/mm, surface elec. resistivity at  
20, 100, and 150.degree. 1.6 .times. 10<sup>16</sup>, 2.0 .times. 10<sup>16</sup>, and 3.2  
.times. 10<sup>16</sup> OMEGA., resp., **dielec.** const. (1 kHz) at 20, 100,  
180, and 200.degree. 3.34, 3.23, 2.79, and 2.61, resp., and **dielec**  
.loss (1 kHz) at 20, 100, 150, and 180.degree. 3.0, 2.0, 3.0, and 3.3,  
resp.  
ST **electret** polyester **dielec** property; interfacial polymn

electret polyester; polyarylate electret dielec  
 property  
 IT Polyesters, preparation  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (manuf. of, from arom. bisphenols and iso- and terephthaloyl chlorides,  
 for electrets)  
 IT Dielectric constant and dispersion  
 Dielectric loss  
 Dielectric strength  
 Electric resistance  
 (of electret polyesters)  
 IT Electrets  
 (polyesters for, manuf. of)  
 IT Polymerization  
 (interfacial, of arom. bisphenols with iso- and terephthaloyl chloride,  
 for electrets)  
 IT 72688-38-1P 72688-39-2P 73347-90-7P 73347-91-8P  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (manuf. of, for electrets)

L19 ANSWER 8 OF 16 HCAPLUS COPYRIGHT 2001 ACS

AN 1980:129631 HCAPLUS

DN 92:129631

TI Polycarbonates with improved electret properties

IN Brzozowski, Zbigniew; Kaczorowski, Janusz

PA Politechnika Warszawska, Pol.

SO Pol., 3 pp.

CODEN: POXXA7

DT Patent

LA Polish

IC C08G063-62

CC 35-3 (Synthetic High Polymers)

Section cross-reference(s): 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	PL 104443	P	19790831	PL 1975-186171	19751230

AB The title polycarbonates are prep'd. by interfacial polycondensation of gem-bisphenol derivs. of satd. polycyclic compds., e.g. 2,2-bis(4-hydroxyphenyl)norbornane (I), and/or their bis(chloroformates), with gem-bisphenol derivs. of CH<sub>2</sub>CCl<sub>2</sub>, e.g. 2,2-bis(4-hydroxyphenyl)-1,1-dichloroethylene (II), and/or their bis(chloroformates). The reaction is performed in the presence of quaternary ammonium, phosphonium, antimonium, or arsenium bases at a (2-1):(1-4) org.-inorg. phase ratio. Thus, to 250 mL water contg. 12 g NaOH and 27.8 g I were added 0.2 g PhCH<sub>2</sub>Et<sub>3</sub>NCl [56-37-1] in 30 mL water, 150 mL CH<sub>2</sub>Cl<sub>2</sub> (20.degree.) and, within 0.5 h, 33.4 g II in 100 mL CH<sub>2</sub>Cl<sub>2</sub>. After 1 h at 20.degree. the mixt. was acidified with HCl, 200 mL CH<sub>2</sub>Cl<sub>2</sub> was added, the org. phase was sepd., and from it was obtained by pptn. with MeOH polycarbonate (III) [73131-71-2] in 92% yield. A 30-.mu. thick film cast from III had tensile strength 650 kg/cm, elongation at break 10-15%, dielec. strength 150 kV/mm, surface elec. sensitivity 9.5 .times. 1015 .OMEGA. cm (20.degree.) and 1.6 .times. 1016 .OMEGA. cm (100.degree.), bulk elec. resistivity 1.7 .times. 1016 .OMEGA. cm (20.degree.) and 2.9 .times. 1014 .OMEGA. cm (100.degree.), dielec. const. (1 Hz) 5.5 (20.degree.) and 5.3 (100.degree.), and dielec. loss (1 Hz) 4.0 (20.degree.) and 3.5 (100.degree.).

ST norbornane polycarbonate electret; dielec property polycarbonate; mech property polycarbonate; interfacial polycondensation polycarbonate

IT Dielectric constant and dispersion

Dielectric loss

Dielectric strength

Electric resistance

(of polycarbonates)

IT Electrets

(polycarbonates for, prepn. of)

IT Polymerization catalysts  
(**condensation**, interfacial, benzyltriethylammonium chloride,  
for bisphenols with bisphenol bis(chloroformates))  
IT Polymerization  
(interfacial, of bisphenols with bisphenol chloroformates)  
IT Polycarbonates  
RL: PREP (Preparation)  
(norbornane ring-contg., prepn. of, for **electrets**)  
IT 56-37-1  
RL: CAT (Catalyst use); USES (Uses)  
(catalysts, for interfacial **polycondensation** of bisphenols  
with bisphenol chloroformates)  
IT 73131-14-3P 73131-71-2P  
RL: PRP (Properties); PREP (Preparation)  
(prep. and **dielec.** and mech. properties of)  
IT 73131-13-2P 73131-62-1P 73131-64-3P 73131-66-5P 73131-68-7P  
73131-70-1P  
RL: PREP (Preparation)  
(prep. of, for **electrets**)

L19 ANSWER 9 OF 16 HCAPLUS COPYRIGHT 2001 ACS  
AN 1979:447953 HCAPLUS  
DN 91:47953  
TI Frequency dependence of **dielectric loss** in **condensed**  
matter  
AU Ngai, K. L.; White, C. T.  
CS Nav. Res. Lab., Washington, DC, USA  
SO Report (1978), NRL-MR-3863; Order No. AD-A060368, 33 pp. Avail.: NTIS  
From: Gov. Rep. Announce. Index (U. S.) 1979, 79(5), 237  
DT Report  
LA English  
CC 76-3 (Electric Phenomena)  
AB The **dielec.** response of **condensed** matter below  
microwave frequencies has been known to depart from Debye behavior,  
sometimes to the point of being unrecognizable, and yet the generally  
accepted interpretations of the departures have seldom deviated from the  
Debye philosophy of simple relaxation phenomena in noninteracting systems.  
It was recently recognized, from a synoptic view of the exptl. data  
involving a wide range of materials, that there exists a remarkable  
universality of **dielec.**-response behavior regardless of phys.  
structure, types of bonding, chem. type, polarizing species and  
geometrical configurations. This strongly suggests that there should  
exist a correspondingly universal mechanism of **dielec.**  
polarization in **condensed** matter. This work proposes such a  
universal mechanism assocd. with the existence of some ubiquitous very low  
energy excitations in the system. These excitations exhibit an IR  
divergent-like response to transitions of the polarizing species induced  
by a time-varying elec. field in the **dielec.** and give rise to  
the universal **dielec.** response.

ST **dielec** loss **condensed** matter; solid **dielec**  
loss; liq **dielec** loss; ferroelec material **dielec** loss;  
semiconductor **dielec** loss; **electret dielec**  
loss; polymer **dielec** loss; liq crystal **dielec** loss;  
amorphous material **dielec** loss; glass **dielec** loss; org  
compd **dielec** loss

IT Amorphous substances

**Electrets**

Liquid crystals

Semiconductor materials

(**dielec.** loss in, frequency dependence of)

IT Polymers, properties

RL: PRP (Properties)

(**dielec.** loss in, frequency dependence of)

IT **Dielectric** loss

(in **condensed** matter, frequency dependence of)

L19 ANSWER 10 OF 16 HCAPLUS COPYRIGHT 2001 ACS

AN 1976:543949 HCPLUS  
 DN 85:143949  
 TI Considerations on the nature of **electret** charge in poly(methyl methacrylate)  
 AU Neagu, Eugen  
 CS Rom.  
 SO An. Stiint. Univ. "Al. I. Cuza" Iasi, Sect. 1b (1974), 20(1), 51-8  
 CODEN: AUZFAA  
 DT Journal  
 LA French  
 CC 36-5 (Plastics Manufacture and Processing)  
 AB The introduction of a thin sheet of paper, as a **condenser**, between a poly(methyl methacrylate) (I) [9011-14-7] layer and the electrode in the formation of an **electret** did not effect the intensity of the elec. field but did cause a decrease in the charge remaining in the **electret**. **Electret** charges resulted from injection of charges from the electrode into the **dielec.**, from the **dielec.** into the electrode, from a process of thermal activation and formation of electron-hole pairs, and charges due to polarization. I **electrets** were prep'd., with and without the paper interlayer, at 421.degree.K and 4000, and 8000, and 9000 V/cm field intensity and at 395.degree.K and 10,000 V/cm field intensity. The increase in field intensity led to an increase in interfacial polarization at the contact surface which obscured the charge formation phenomenon. The appearance of a homocharge was related to the intensity of the polarizing field and to temp. for any given metal-**dielec.** system.  
 ST polymethacrylate **electret** charge formation  
 IT Electric field, chemical and physical effects  
     (on charge formation in poly(methyl methacrylate) **electrets**)  
 IT **Electrets**  
     (poly(methyl methacrylate), charge formation in)  
 IT 9011-14-7  
 IT RL: PRP (Properties)  
     (**electret**, charge formation in)  
  
 L19 ANSWER 11 OF 16 HCPLUS COPYRIGHT 2001 ACS  
 AN 1975:58715 HCPLUS  
 DN 82:58715  
 TI **Electret** properties of biaxially oriented polypropylene films  
 AU Eidel'nant, M. P.; Romanovskaya, O. S.; Shubaev, V. P.; Sergun'ko, A. M.; Myasnikov, G. D.; Lesnykh, O. D.  
 CS USSR  
 SO Plast. Massy (1974), (9), 41-4  
 CODEN: PLMSAI  
 DT Journal  
 LA Russian  
 CC 36-5 (Plastics Manufacture and Processing)  
     Section cross-reference(s): 76  
 AB Biaxially-oriented polypropylene (I) [9003-07-0] films have **electret** properties and can be used as microphone components at room temp. and occasionally at temps.  $\Delta t \geq 60^\circ\text{C}$ . The rate of the elec. charge dissipation from I surface increases when the charge density ( $\sigma$ ) and temp. are increased. The value of  $\sigma$  after the discharge during time  $\tau$  is given by  $\sigma = \sigma_0 / (1 + \alpha \tau)$ , where  $\sigma_0$ ,  $\alpha$ , and  $\beta$  are consts. Assuming that the elec. discharge of I **electret** (e.g. a **condenser** consisting of I film coated with grounded Al on 1 side and charged on the other side) proceeds through the interior of I only, its sp. resistance ( $\rho$ ) can be calcd. since  $\sigma / d \cdot \tau = \rho$  and  $\sigma_0 / \epsilon_0 \cdot \epsilon_r \cdot \rho = 0$ ;  $\epsilon_0$  and  $\epsilon_r$  are the **dielec.** consts. of I membrane and vacuum resp.  
 ST polypropylene **electret** discharge; microphone membrane oriented polypropylene  
 IT Electric resistance  
     (calcn. of, of polypropylene **electrets**)  
 IT Electric charge

(d. of, calcn. of, of polypropylene **electrets**)  
IT **Electrets**  
(polypropylene, elec. charge d. and elec. resistance of, calcn. of)  
IT 9003-07-0  
RL: USES (Uses)  
(**electrets** from biaxially oriented, elec. charge d. and elec.  
resistance of, calcn. of)

L19 ANSWER 12 OF 16 HCAPLUS COPYRIGHT 2001 ACS  
AN 1974:8127 HCAPLUS  
DN 80:8127  
TI Evaluation of the depth of homodischarge penetration into film corona  
**electrets**  
AU Grinchenko, I. M.; Zakrzhevskii, V. I.; Tairov, V. N.  
CS Leningr. Elektrotekh. Inst., Leningrad, USSR  
SO Izv. Vyssh. Ucheb. Zaved., Fiz. (1973), 16(6), 158-9  
CODEN: IVUFAC  
DT Journal  
LA Russian  
CC 71-3 (Electric Phenomena)  
Section cross-reference(s): 37  
AB The **electret** homocharge of poly(tetrafluoroethylene) (I) films,  
which were exposed to a corona discharge, is localized in a very thin  
layer approx. 0.7-0.9 .mu. deep in the films. The thickness of this layer  
increases with increasing discharge duration. The **electret**  
-layer thickness was detd. by the method of **dielec.** losses by  
using Au, plated on the nonpolarized and corona **electret** I  
films, as electrodes. The film exposed to the corona discharge behaves as  
a 2-layer **condenser**.  
ST **electret** film homocharge depth; charge depth **electret**  
film  
IT **Dielectric loss**  
(of poly(tetrafluoroethylene) film **electrets**, homocharge  
depth penetration from corona discharge in relation to)  
IT Electric charge  
(penetration depth of, into poly(tetrafluoroethylene) film  
**electrets** from corona discharge)  
IT Electric corona  
(poly(tetrafluoroethylene) **electret** charge penetration in  
presence of)  
IT **Electrets**  
(poly(tetrafluoroethylene) films, homocharge depth penetration in, from  
corona discharge)  
IT 9002-84-0  
RL: USES (Uses)  
(**electrets**, homocharge penetration depth in film, from corona  
discharge)

L19 ANSWER 13 OF 16 HCAPLUS COPYRIGHT 2001 ACS  
AN 1973:165269 HCAPLUS  
DN 78:165269  
TI **Condensation** and epitaxial growth of evaporated thin films on  
sodium chloride covered by an amorphous **dielectric** intermediate  
layer  
AU Barna, A.; Barna, P. B.; Pocza, J. F.; Pozsgai, I.  
CS Res. Inst. Tech. Phys., Hung. Acad. Sci., Budapest, Hung.  
SO Acta Phys. (1973), 33(3-4), 399-410  
CODEN: APAHAQ  
DT Journal  
LA English  
CC 70-1 (Crystallization and Crystal Structure).  
Section cross-reference(s): 71  
AB Expts. were carried out to study the **condensation** and epitaxy of  
indicator films (e.g. Au, ZnS, PbS) on the surface of NaCl, covered by  
amorphous, intermediate layers (e.g. C, SiO<sub>x</sub>). The results confirmed that  
the properties of NaCl single-crystal inducing epitaxial growth of thin  
films can be transferred by an intermediate, amorphous **dielec**.

layer to the indicator film. This can be explained by the growth of the intermediate layer behaving as an **electret** in the potential field of the substrate crystal. The **condensation** of the indicator film is affected by the degree to which the intermediate layer is polarized by the substrate crystal.

ST **condensation** thin film; epitaxial growth thin film;  
dielec layer film epitaxy

IT Epitaxy  
(on sodium chloride, covered with amorphous dielec.  
intermediated layer)

IT 1314-87-0  
RL: PROC (Process)  
(epitaxy of, on sodium chloride with amorphous intermediate layer)

IT 1314-98-3, properties 7440-57-5, properties  
RL: PRP (Properties)  
(epitaxy of, on sodium chloride with amorphous intermediate layer)

IT 7440-44-0, properties 11126-22-0  
RL: PRP (Properties)  
(epitaxy on sodium chloride covered with amorphous intermediate layer  
of)

IT 7647-14-5, properties  
RL: PRP (Properties)  
(epitaxy on, covered with amorphous dielec. intermediate  
layer)

L19 ANSWER 14 OF 16 HCAPLUS COPYRIGHT 2001 ACS

AN 1971:502496 HCAPLUS

DN 75:102496

TI Dielectric behavior of perspex magnetoelectrets

AU Qureshi, M. S.; Bhatnagar, C. S.

CS Dep. Phys., M.A. Coll. Technol., Bhopal, India

SO Indian J. Pure Appl. Phys. (1971), 9(6), 361-3

CODEN: IJOPAU

DT Journal

LA English

CC 71 (Electric Phenomena)

AB Magnetic field of 9.43 kG was used to prep. **magnetoelectrets** of Perspex at 2 forming temps., 160.degree. and 170.degree., which are above the softening point of the plastic. The capacitance of a parallel-plate **condenser**, with Perspex disk as the **dielec.** material was measured, before and just after the **magnetoelectret** formation and also after 30 days of **electret** formation, at different audio frequencies (0.2-15 Hz). The capacitance which decreases just after the **electret** formation subsequently recovers as the **electret** charge decays. The effect is greater for **magnetoelectrets** prep'd. at 170.degree.. The results are correlated with the 2-charge theory proposed by M. L. Khare and B.

ST dielec props Perspex magnetoelectrets;  
electret magneto dielec props

IT Electrets

(magneto-, perspex)

IT Electric capacitance

(of perspex magnetoelectrets)

IT 9011-14-7, properties

RL: PRP (Properties)

(magnetoelectrets, Perspex)

L19 ANSWER 15 OF 16 HCAPLUS COPYRIGHT 2001 ACS

AN 1969:69117 HCAPLUS

DN 70:69117

TI Polarizable dielectric polycarbonate

IN Perlman, Martin M.; Reedyk, Cornelis W.

PA Northern Electric Co. Ltd.

SO Brit., 6 pp.

CODEN: BRXXAA

DT Patent

LA English

IC H01G  
CC 37 (Plastics Fabrication and Uses)  
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI GB 1135998		19681211	US	19661101

AB High-mol.-wt. polycyclic bisphenol polycarbonates having high vol. resistivity, made in film form and polarized, retain their charge for long periods of time, e.g. 10 years. They are superior to other polarizable dielec. materials for use as diaphragms in **condenser** microphones. Polycyclic carbonates contg. either a single norbornane ring or a norbornane ring attached to the main mol. chain by another ring are preferred. Dissolved in common solvents, they can be cast, giving clear films with good tensile and elec. properties. They are noncryst. compds. with mol. wts. 10,000-100,000. For example, a high-mol.-wt. thermoplastic polymer made from 4,4'-(2-norbornylidene)diphenol was compared with poly(ethylene terephthalate) and poly(tetrafluoroethylene). After polarizing by applying a potential across the films for 30 min. at 120.degree. and 3 hrs. at room temp., the voltage decay was measured over 9 months. The charge on the polycarbonate film remained steady during this period, while the other films showed considerable voltage decay.

ST polarizable dielec polycarbonates; dielec polycarbonates polarizable; polycarbonates dielec polarizable; films polycyclic bisphenol polycarbonates

IT **Electrets**  
(from 4,4'-(2-norbornylidene)diphenol polycarbonates)

IT 24979-94-0 26007-14-7  
RL: DEV (Device component use); USES (Uses)  
(electrets from)

L19 ANSWER 16 OF 16 HCPLUS COPYRIGHT 2001 ACS

AN 1968:34249 HCPLUS

DN 68:34249

TI Production and charge decay of film **electrets**

AU Perlman, Martin M.; Reedyk, Cornelis W.

CS Coll. Mil. Roy., Saint-Jean, Can.

SO J. Electrochem. Soc. (1968), 115(1), 45-9

CODEN: JESOAN

DT Journal

LA English

CC 71 (Electric Phenomena)

AB The object of this work has been to obtain charged dielec. films, **electrets**, that retain their charge over periods of years when left open circuited. Such films are receiving increasing attention because of their potential use in practical devices such as **condenser** microphones, electrostatic recorders, and air filters. Procedures have been devised to form highly charged thin films and to measure their decay rates. Charge decay comparisons are made among different materials at various temps., charged in different ways. A procedure is developed that enables lifetimes of **electrets** at room temp. to be predicted by extrapolating short charge decay times at elevated temps. A no. of materials are identified as suitable for very long-lived **electrets**.

ST FILM ELECTRETS; CHARGE DECAY FILM ELECTRETS;  
ELECTRETS FILM

IT Films  
(electret, production and charge decay of)  
IT **Electrets**  
(film, production and charge decay of)

> d que  
L46 131 SEA FILE=INSPEC ABB=ON PLU=ON ELECTRET? (3A) (CONDEN? OR  
VOLUME OR TEMP? OR PRESSUR?)  
L48 18 SEA FILE=HCAPLUS ABB=ON PLU=ON (VAPOR? OR VAPOUR? OR LIQUID?  
OR WATER OR FLUORCARBON?) AND L46  
L49 1 SEA FILE=HCAPLUS ABB=ON PLU=ON (PREP OR PROC OR FMU)/RL AND  
L48

=> d max

L49 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2001 ACS  
AN 1982:591877 HCAPLUS  
DN 97:191877  
TI Effect of the electric field of a polymeric electret on the sorption of  
**vapors** of an organic solvent  
AU Vertyachikh, I. M.; Gol'dade, V. A.; Neverov, A. S.; Pinchuk, L. S.  
CS Inst. Mekh. Metallopolim., Gomel, USSR  
SO Vysokomol. Soedin., Ser. B (1982), 24(9), 683-7  
CODEN: VYSEBAI; ISSN: 0507-5483  
DT Journal  
LA Russian  
CC 76-10 (Electric Phenomena)  
Section cross-reference(s): 37, 66  
AB The sorption of solvent **vapors** by polymer **electrets** at  
**temp**s. close to the glass-transition temp. ( $T_g$ ) is affected by the  
elec. field and the electrostatic-polarization interaction between the  
sorbent and sorbate. Electrets were prep'd. by heating of  
poly(vinylbutyral) films at 393 K in contact with short-circuit electrodes  
from Al and Cu foils and subsequent cooling to room temp. The sorption  
capacity of electret films for diethylene glycol and C<sub>6</sub>H<sub>6</sub> at  $T_g$  (323 K) is  
lower than that of unpolarized films. No such difference is obsd. at 303  
K due to the decrease in segmental mobility of the polymer below  $T_g$ . The  
low sorption capacity of polarized films at  $T_g$  is related to the formation  
of oriental dipoles by the solvents under the effect of the elec. field  
which hinders further sorption by the electret film.  
ST polyvinylbutyral electret sorption solvent; glycol sorption  
polyvinylbutyral electret; benzene sorption polyvinylbutyral electret  
IT Sorption  
(of solvent **vapors**, by poly(vinylbutyral) film  
**electrets**, elec. field and **temp.** effect on)  
IT Vinyl acetal polymers  
RL: PRP (Properties)  
(butyral, film electrets, sorption by, of solvent **vapors**,  
elec. field and temp. effect on)  
IT Electrets  
(film, poly(vinylbutyral), elec. field of, solvent **vapor**  
sorption in relation to)  
IT 71-43-2, properties 111-46-6, properties  
RL: PEP (Physical, engineering or chemical process); PROC  
(Process)  
(sorption of, by poly(vinylbutyral) electret film, elec. field and  
temp. effect on)

L2 2923250 SEA FILE=HCAPLUS ABB=ON PLU=ON (VAPOR OR VAPOUR OR LIQUID?  
OR WATER OR FLUOCARBON? OR AQUEOUS?)  
L17 378623 SEA FILE=HCAPLUS ABB=ON PLU=ON ?CONDEN?  
L22 1649 SEA FILE=WPIDS ABB=ON PLU=ON ?ELECTRET?  
L25 67512 SEA FILE=WPIDS ABB=ON PLU=ON L2 (S) L17  
L26 10 SEA FILE=WPIDS ABB=ON PLU=ON L25 AND L22

=> d max 1-  
YOU HAVE REQUESTED DATA FROM 10 ANSWERS - CONTINUE? Y/(N):Y

L26 ANSWER 1 OF 10 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD  
AN 1994-279257 [34] WPIDS  
DNN N1994-220057  
TI In-flow acoustic sensor for measuring waves in fluids having sub-sonic,  
super-sonic fluids in wind tunnel - has blunt-shaped nose with cavity  
contg. microphone corresp. to cylindrical section of sensor.  
DC S02  
IN ALLEN, C S  
PA (USAS) NASA US NAT AERO & SPACE ADMIN  
CYC 1  
PI US 8149896 A 19940815 (199434)\* 24p G01P000-00  
US 5477506 A 19951219 (199605) 11p H04R023-00  
ADT US 8149896 A US 1993-149896 19931110; US 5477506 A US 1993-149896 19931110  
PRAI US 1993-149896 19931110  
IC ICM G01P000-00; H04R023-00  
AB US 8149896 A UPAB: 19941013

The acoustic sensor (10) comprises a nose section (18) having a blunt tip (18A) and a shoulder (18B), a straight-sided cylindrical section (20), a transition point (22) where the shoulder (12B) mates with the straight sided cylindrical section (20), a microphone with a diaphragm (24), and a screen (26) comprising a screen material covering the entrance to the microphone diaphragm (24).

The microphone may be of a **condensor or electret** type or any other type of instrument that produces an electric signal that is proportional to the acoustic waves travelling through in fluid flow. Further, the screen may be of a continuous material and attached to the cylindrical section (20) so as to seal the enclosed microphone diaphragm (24) allowing it, as well as the sensor (10), to be submerged in a liquid fluid.

ADVANTAGE - Has proper aerodynamic properties. Sensor insertion into fluid flow does not excite instabilities in flow or in microphone diaphragm. Nose section is relatively insensitive to small angles of incidence normally created by a non-parallel insertion of sensor into flow. Stable static pressure at point of measurement.

Dwg.3/7

ABEQ US 5477506 A UPAB: 19960205

An acoustic sensor for measuring acoustic waves contained in a flowing fluid, the sensor comprising:

(a) an axisymmetric elliptical nose section having a tip on one of its ends and a transition point on its other end, the elliptical nose section having a shape in cross section defined by a number of fresnel curves and having a major axis serving as the axis of symmetry of the axisymmetric nose section;

(b) a straight-sided cylindrical section having a predetermined diameter (D), a predetermined length (l) and one of its ends connected to the transition point; and

(c) an instrument for measuring unsteady pressure fluctuations and located in a cavity downstream from the transition point at a distance corresponding to about 3 to 4 times the diameter.

Dwg.3a/7

FS EPI

FA AB; GI

MC EPI: S02-G02X; S02-J07

L26 ANSWER 2 OF 10 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD  
 AN 1991-178927 [25] WPIDS  
 DNN N1991-137094 DNC C1991-077232  
 TI Improved combustion of fuels with oxygen-contg. gases - by contacting reactants directly on surface of pref. inner surface housing of IC engine.  
 DC A97 H06 P73 Q52 Q53  
 IN STUEER, W; STUER, W  
 PA (STUE-I) STUER W; (STUE-I) STUEER W  
 CYC 34  
 PI DE 3940654 A 19910613 (199125)\*  
 WO 9109216 A 19910627 (199128)  
     RW: AT BE CH DE DK ES FR GB GR IT LU NL OA SE  
     W: AT AU BB BG BR CA CH DE DK FI GB HU JP KP KR LK LU MC MG MW NL NO  
         RO SD SE SU US  
 AU 9179949 A 19910718 (199142)  
 EP 502937 A1 19920916 (199238) DE 24p F02B051-04  
     R: AT BE CH DE DK ES FR GB GR IT LI LU NL SE  
 JP 05502281 W 19930422 (199321) 6p F02B051-04  
 US 5507267 A 19960416 (199621) 7p F02M027-04  
 ADT DE 3940654 A DE 1989-3940654 19891208; EP 502937 A1 WO 1990-EP2131  
 19901207, EP 1991-900251 19901207; JP 05502281 W WO 1990-EP2131 19901207,  
 JP 1991-500654 19901207; US 5507267 A CIP of US 1991-635189 19910305, CIP  
 of US 1992-859511 19920608, US 1994-187198 19940125  
 FDT EP 502937 A1 Based on WO 9109216; JP 05502281 W Based on WO 9109216  
 PRAI DE 1989-3940513 19891207; DE 1989-3940654 19891208  
 REP 2.Jnl.Ref; EP 349663; FR 2028887; FR 2325815; GB 1152957; GB 2092668; JP  
 60219412; JP 60259719  
 IC ICM F02B051-04; F02M027-04  
 ICS B01J019-08; B32B007-02; B32B025-20; F02B077-02; F02M035-10  
 AB DE 3940654 A UPAB: 19930928  
 In the improved combustion of fuels with O<sub>2</sub>-contg. gases, the novelty is that the reactants or one of the reactants are directly contacted on the surface (pref. the inner surface of an air housing of an I.C. engine). The surface either supports or is made of a hardened material (I), which before or during hardening is electrically polarised or charged. It can also be electrostatically charged by friction.  
 USE/ADVANTAGE - Useful for combustion of finely divided fuels with O<sub>2</sub>-contg. gases, esp. for combustion of gaseous, vaporous or liq. fuels esp. in I.C. engines of vehicles. Pref. electrical treatment of (I), esp. electrical polarisation or charging occurs in an electric D.C. field (1 KV) directly before hardening. (I) is a polymeric plastic, esp. polyorganosiloxane, PTFE, PE, PP, **condensed** silicon resin or polymethylsiloxane, or paraffin and their mixts., which can be dissolved in a solvent, such as trichloroethylene or crystal oil (petrol fraction). @ (6pp Dwg.No.0/0)s t  
 ABEQ JP 05502281 W UPAB: 19931114  
 In the improved combustion of fuels with O<sub>2</sub>-contg. gases reactant(s) is directly contacted on the surface (pref. the inner surface of an air housing of an I.C. engine). The surface either supports or is made of, a hardened material. (I), which before or during hardening is electrically polarised or charged. It can also be electrostatically charged by friction.  
 Pref. electrical treatment of (I) esp. electrical polarisation or charging occurs in an electric D.C field (1 KV) directly before hardening. (I) is a polymeric plastics esp., polyorganosiloxane, PTFE, PE, PP, condensed silicon resin or polymethylsiloxane or paraffin and their mixts., which can be dissolved in a solvent such as trichloroethylene or crystal oil (petrol fraction).  
 USE/ADVANTAGE - Useful for combustion of finely divided fuels with O<sub>2</sub>-contg. gases esp. for combustion of gaseous, vaporous or liq-fuels esp. in I.C. engine of vehicles.  
 ABEQ US 5507267 A UPAB: 19960529  
 A process for treating combustion reactants for providing an efficient combustion of the reactants, the process comprising the steps of:  
     applying an electrically polarizable material to a surface of part of a fuel system for an internal combustion engine where the surface is one

of an inner surface of an air filter housing, a surface of a valve a surface of a fuel injection jet, and combinations of it;  
electrically polarizing the electrically polarizable material causing the electrically polarizable material to become an electrically polarized **electret** material; and  
contacting at least one of the reactants with the electrically polarized **electret** material prior to combustion of the reactants.

Dwg.0/2

FS CPI GMPI

FA AB

MC CPI: A12-T03; H06-B

DRN 0441-U; 0441-U

PLC UPA 19930924

KS: 3003 0210 0211 0218 0231 0239 0248 0947 1306 2318 2420 2424 2427 2506  
2507 2553 2647 2718 2733 2743 2829

FG: \*001\* 014 04- 040 041 046 047 05- 050 062 064 087 13- 229 23- 316 332  
38- 398 42& 42- 431 434 477 506 511 575 582 623 624 627 672 688  
721 722

L26 ANSWER 3 OF 10 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD

AN 1990-146443 [19] WPIDS

DNN N1990-113450

TI Electrodynamic heat-pipe for direct conversion of heat - has evaporation-condensation zones, nozzle-ioniser, and collector of charges.

DC Q78 W06 X25

IN BALOKHIN, V L; BOLOGA, M K; KOZHUKHAR, I A

PA (AMLP-R) AS MOLD APPL PHYS

CYC 1

PI SU 1495630 A 19890723 (199019)\*

ADT SU 1495630 A SU 1987-4352797 19871207

PRAI SU 1987-4352797 19871207

IC F28D015-02

AB SU 1495630 A UPAB: 19930928

Parent Cert. dealt with pipe having body (1) with evapn./ condensation zones (2,3) and vapour channel (4), plus tubular insert (5) along body axis and, one above the other, ioniser in form of nozzle (6) and collector (7) of electrical charges. Pipe also has lengthwise dielectric partition (10) on collector (7) and dividing it into two parts, with two electrodes on both sides of partition between nozzle and collector. Each electrode is electrically connected with part of collector on other side of partition. Electrodes are coated with electrets.

As heat is fed into and removed from evapn. (2) and condensation (3) zones, heat and mass-transfer take place as state of heat-carrier alters. Vapour from (2) goes via nozzle (6) along pipe (11) into zone (3). Condensate from collector (8) goes via pipe (9) back to nozzle (6) into zone (2). This condensate is dispersed by vapour and electrically charged. Drops are given opposite charges by electrodes (13) and particles are sep'd. by partition (12) into two flows, on to two parts of mesh-collector (7). Electrical energy goes to consumer via outlet (15).

USE/ADVANTAGE - In heat-engineering for direct conversion of heat-energy into electrical energy, e.g. in marine buoys. Conversion process is intensified. Bul.27/23.7.89.

1/1

FS EPI GMPI

FA AB; GI

MC EPI: W06-C09; X25-L07

L26 ANSWER 4 OF 10 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD

AN 1989-173971 [24] WPIDS

DNN N1989-132816 DNC C1989-076918

TI **Electret** film for air filters, masks, etc. - comprises charged porous film of dielectric polymer with particles of organic, inorganic or metallic material spaced at various intervals.

DC A88 J01 P41 P42 P73 U11

IN TAKASE, S; TANI, Y

PA (TOYM) TOYO BOSEKI KK

CYC 3

PI DE 3839956 A 19890608 (198924)\* 12p

JP 01199614 A 19890811 (198938)

JP 01258714 A 19891016 (198947)

US 5110620 A 19920505 (199221)

10p

US 5112677 A 19920512 (199222) 10p D03D025-00

JP 2536584 B2 19960918 (199642) 4p B01D039-14

JP 2595586 B2 19970402 (199718) 5p B01D039-14

DE 3839956 C2 19980702 (199830) B03C003-28

ADT DE 3839956 A DE 1988-3839956 19881126; JP 01199614 A JP 1987-301302

19871128; JP 01258714 A JP 1988-85985 19880406; US 5110620 A US

1991-770564 19911003; US 5112677 A US 1988-276617 19881128; JP 2536584 B2

JP 1988-85985 19880406; JP 2595586 B2 JP 1987-301302 19871128; DE 3839956

C2 DE 1988-3839956 19881126

FDT JP 2536584 B2 Previous Publ. JP 01258714; JP 2595586 B2 Previous Publ. JP 01199614

PRAI JP 1988-85985 19880406; JP 1987-301302 19871128

IC ICM B01D039-14; B03C003-28; D03D025-00

ICS B05D003-06; B05D003-12; B05D003-14; B29D007-01; B32B007-02;

B32B027-02; B32B027-14; B32B027-18; B32B033-00; C08J005-18;

C08J007-00; D04H001-72; H01B019-00

ICA D06M010-00

AB DE 3839956 A UPAB: 19970502

**Electret** film (I) comprises a porous foil mfd. from a dielectric polymer (II) and at least one solid organic, inorganic or metallic material (III) which is spaced at various intervals. (I) is mfd. by treating (II) with (III) and electrically charging the film.

The porous film is spun, knitted or non-woven textile fabric, porous film or porous foam; (II) is polyolefin, PVDC or polycarbonate fibre, esp. polyolefin, pref. of dia. 0.01-100 microns; (III) is in the form of particles of ceramic, metal nitride or carbon or an organic material solid at room temp. (partic. a solid organic acid or deriv. thereof), pref. of size 0.001-50 microns, or Ag, Au, Al or Sn metal; (III) is vaporised by heating and the foil is treated with the **vapour** or **condensed** particles therefrom, and then electrified by corona discharge; amt. of particles (III) is 0.01-20 wt.%.

USE/ADVANTAGE - (I) is useful for the prodn. of air filters, masks, etc. for removing dust from the air for clean rooms, buildings, etc.

W.r.t. prior-art **electret** films, (I) can carry a larger charge and retain it for a longer time, thus retaining its dust-collecting power.

Dwg.0/3

ABEQ US 5110620 A UPAB: 19930923

Mfr of an **electret** sheet comprises providing a surface of a porous sheet with at least one particulate solid spaced at various intervals selected from (a) organic materials that are solid at room temp. and consist of carbocyclic acids (metal salts), polyethylene, polypropylene, polyamide, polyethylene terephthalate, polyvinylidene fluoride, polytetrafluoroethylene, polystyrene, PVC, cellulose or PVA; (b) ceramics, metal nitrides or C black; and (c) Al, Ag, Sn, Ni or Cu. The sheet is subsequently electrified.

USE/ADVANTAGE - Used as an air filter or a mask. The filter can be used for purifying air in a clean room or may be attached to a vacuum cleaner, a copying machine. The sheet has a large amt. of electrostatic charge, contains a small amt. of fibres but has a high collection efficiency which does not decrease with time.

ABEQ US 5112677 A UPAB: 19930923

An **electret** sheet comprises a porous sheet made of a dielectric polymer and a solid material consisting of organic materials solid at room temp and consisting of organic carboxylic acids, polyethylene, polypropylene etc., inorganic materials that are ceramics, metal nitrides or carbon black, and metallic materials eg aluminium, silver, tin, etc. The porous sheet has material in particulate form spaced at various intervals on the surface of the dielectric polymer.

USE - **Electret** sheet is suitable for use as a air-filter,

mask etc.  
FS CPI EPI GMPI  
FA AB  
MC CPI: A09-A03; A11-C04B; A11-C04B2; A12-E01; A12-H04; J01-G03; J01-G04  
EPI: U11-C15  
PLC UPA 19930924  
KS: 0209 0210 0231 0232 0248 0836 0947 1292 2196 2478 2481 2482 2498 2499  
2513 2528 2539 2549 2553 2555 2653 2654 2671 2692 2702 2703 2715 2743  
2820 2821

FG: \*001\* 014 04- 041 046 050 062 063 064 071 087 143 155 157 158 274 435  
466 467 471 472 481 483 491 493 505 506 507 511 575 595 596 613  
619 622 623 627 664 665 666 667 688 694 722

L26 ANSWER 5 OF 10 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD  
AN 1986-198285 [31] WPIDS  
DNN N1986-148012 DNC C1986-085301  
TI Crematorium furnace flue gases cleaning - induct with several types of filters in series.  
DC J01 Q73 Q74  
PA (ACSM-N) ACS MILIEUTECHN  
CYC 10  
PI EP 188853 A 19860730 (198631)\* DE 10p  
R: AT BE CH DE FR GB IT LI NL SE  
NL 8500020 A 19860801 (198635)  
ADT EP 188853 A EP 1985-202152 19851231; NL 8500020 A NL 1985-20 19850104  
PRAI NL 1985-20 19850104  
REP CA 943873; CH 593090; US 4175934  
IC B01D046-12; B01D050-00; F23G001-00; F24F003-16  
AB EP 188853 A UPAB: 19930922  
The flue gases from a furnace in a crematorium are purified before they are discharged in the atmosphere by passing them through a duct with a blower at the end. This creates a passage with a series of consecutive filters by which the different pollutants are removed from the air in turn.

Typically, a blower (4) draws the flue gases into the intake (2) of a duct where a sand filter (5) removes the suspended tar components. An air cooler (6) causes the **water vapour to condense** for removal before the entry in a dust filter (7). This can be a bag filter, an electrostatic or an **electret** type.

A chemical absorption filter (8) and an activated carbon filter (9) are both multi frame filters. The final filter (10) is based on microglass fibres.

ADVANTAGE - This removes both the components (SO<sub>2</sub>, SO<sub>3</sub>, NO<sub>x</sub>, NF, chlorine cpds., fly ash) which would be left by an after combustion, and the objectionable smell.

1/1

FS CPI GMPI  
FA AB  
MC CPI: J01-E02B; J01-G03B  
DRN 1674-U; 1784-U; 1953-U

L26 ANSWER 6 OF 10 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD  
AN 1982-81029E [38] WPIDS  
TI Heat pipe with electro-hydrodynamic generator - has manifold with peripheral metal cylinder enveloped by dielectric cowling.

DC J08 Q78 X11  
IN MAIBORODA, A N; SHKILEV, V D  
PA (AMLA-R) AS MOLD APPLD PHYS  
CYC 1  
PI SU 883643 B 19811123 (198238)\* 2p  
PRAI SU 1979-2736779 19790319  
IC F28D015-00  
AB SU 883643 B UPAB: 19930915

The heat pipe with electro-hydrodynamic generator is based on a Parent Cert. The pipe has an evaporator (1), **condenser** (2) and an electro-hydrodynamic transformer used for heat carrier **vapour**.

stream energy conversion to electric energy. The transformer is placed in the **vapour** chamber and has an ioniser (3). The transformer is made as a nozzle of bimetal plates (7) covered on the **vapour** stream side by a dielectric. An adjustable high voltage transformer (4) used as exciter is placed between manifold (5) and ioniser.

To reduce self-starting time whilst simultaneously increasing the outlet potential the generator is provided with a metal cylinder (8) about its periphery. The cylinder (8) is enveloped by dielectric cowling (9). **Electret** (10) is used as dielectric for bimetal plates covering. Manifold (5) is also provided with mesh (11) having needle electrodes.

Bul.43/23.11.81

1/1

FS CPI EPI GMPI  
FA AB  
MC CPI: J08-C04  
EPI: X11-H03

L26 ANSWER 7 OF 10 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD  
AN 1981-19581D [12] WPIDS

TI Poly-**electret** prodn. by vapour deposition of substd. para xylylene - on electrode in electric field under vacuum.

AW XYLENE.

DC A85 E14 L03 V01

IN BEACH, W F; MAHONEY, D M  
PA (UNIC) UNION CARBIDE CORP

CYC 5

PI DE 3033163 A 19810312 (198112)\*  
GB 2059158 A 19810415 (198116)  
JP 56037620 A 19810411 (198122)  
US 4291244 A 19810922 (198141)  
CA 1146907 A 19830524 (198324)  
GB 2059158 B 19831130 (198348)  
DE 3033163 C 19850228 (198510)

ADT DE 3033163 A DE 1980-3033163 19800903

PRAI US 1979-72302 19790904

IC C08F002-52; C08J003-28; G11C013-02; H01G007-02; H01H001-02

AB DE 3033163 A UPAB: 19930915

**Polyelectret** prodn. involves passing sufficient dipolar, substd. p-xylylene monomer (I) **vapour** into a deposition zone between 2 spaced electrodes to form a coating on their opposite surfaces and producing an intensive electric field between them by activating an external voltage source. The (I) **vapour** is introduced into the deposition zone under vacuum and at a temp. such that the **vapour** **condenses** on the surfaces, where it polymerises to "Parylene" (RTM) (II) and forms an **electret**.

ABEQ DE 3033163 C UPAB: 19930915

Polymer **electret** comprises a parylene ring-substd. by Cl, o-dichloro, cyano or o-dicyano gps. as a coating on a metallic layer.

Pref. some/all of the methylene H atoms are replaced by F.

ADVANTAGE - The **electrets** have a high crystalline m.pt. and high sensitivity and frequency response. Prodn. is by direct electric current discharge of the relevant condensants onto the metal (as opposed to the multistage processes usually reqd. with conventional PVDF). The parylene film can be stripped from the base and is self-supporting.

FS CPI EPI  
FA AB  
MC CPI: A05-J; A11-B05A; A11-B05C; A12-E; A12-E12; A12-L05; E10-A06; L03-B03  
EPI: V01-B02B; V01-B04  
PLC UPA 19930924  
KS: 0016 0019 0028 0209 0210 0212 0230 0231 1311 1893 1900 1914 2081 2095  
2432 2439 2654 2667 2706 2728 2742 2743 2808

FG: \*001\* 011 028 04& 04- 062 063 064 072 151 153 163 225 246 347 358 431  
438 467 47& 477 575 596 604 608 623 627 643 658 659 683 688 694  
720 722 725 726

CMC UPB 19930924  
M3 \*02\* K0 H7 M311 M332 M322 M280 M342 M341 M340 M343 M344 M350 M391

M392 G100 M531 L952 L140 L199 H601 H608 H609 H685 H602 H720 N020  
N310 Q110 Q120 M510 M520 M540 Q334 Q451 Q454 M720 Q010 M414 M902

L26 ANSWER 8 OF 10 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD  
AN 1981-19580D [12] WPIDS  
TI Poly-electret prodn. from metallised poly para xylylene film -  
by earthing metal, charging and coating with poly para xylylene by monomer  
vapour deposition.  
AW MICROPHONE LOUDSPEAKER RADIATE DETECT DOSIMETER ELECTROPHOTOGRAPHIC.  
DC A85 L03 V01 V06  
IN NOWLIN, T E; RASCHKE, C R  
PA (UNIC) UNION CARBIDE CORP  
CYC 5  
PI DE 3033162 A 19810312 (198112)\*  
GB 2058454 A 19810408 (198115)  
JP 56037621 A 19810411 (198122)  
US 4291245 A 19810922 (198141)  
GB 2058454 B 19830608 (198323)  
CA 1146908 A 19830524 (198324)  
DE 3033162 C 19850515 (198521)  
ADT DE 3033162 A DE 1980-3033162 19800903  
PRAI US 1979-72303 19790904  
IC C08F002-52; C08J003-28; G11C013-02; H01G007-02  
AB DE 3033162 A UPAB: 19930915  

Polyelectret prodn. involves (a) earthing the metal on one side of a "parylene" (RTM) (I) film; charging the unmetallised side of the film with a d.c. corona to give a high enough charge to convert the film to an electret; (c) providing sufficient p-xylylene monomer vapour to coat the charged film; and (d) passing the vapour and electret into a deposition zone under vacuum and at a temp. at which the vapour condenses, so that the electret is coated conformably with (I).  
Electrets are useful in microphones, loudspeakers, radiation detectors and dosimeters and in electrophotography. The surface charge is not broken down in the process and no vacuum is needed to introduce the charge. The process allows other configurations besides flat surfaces to be charged easily and the electrets have a high sensitivity and high frequency response.

ABEQ DE 3033162 C UPAB: 19930915  
Polymer electrets (A) consist of as known a polymer film having a metal layer on one side and carrying a surface charge on the other side, which side is uniformly covered by a 2nd polymer film, and (B) both polymer films made of parylene, pref. subst. with Cl, Cl<sub>2</sub>, CN or (CN)<sub>2</sub>.  
Several or all of the H of the methylene in one or both parylene films are pref. replaced by F. The 2nd parylene film is deposited under vacuum from the vapour of a p-xylylene monomer onto the charged side of the 1st parylene film by condensn. The unsubstd. poly-p-xylylene has structure -(CH<sub>2</sub>-Q-CH<sub>2</sub>)<sub>n</sub>-, where Q is a p-linked benzene ring. The parylene films are suitably 0.1-10 microns thick.

ADVANTAGE - Simple process for the prodn. of electrets having a stable surface charge, do not require a vacuum for the charge injection and can be charged in configurations other than a flat form.

FS CPI EPI  
FA AB  
MC CPI: A05-J; A11-B05; A11-C04B; A12-E; A12-E12; A12-L05; L03-B03  
EPI: V01-B02B; V06-J  
PLC UPA 19930924  
KS: 0016 0019 0028 0209 0210 0212 0231 1311 1872 1893 1900 1914 2160 2432  
2439 2481 2483 2498 2500 2513 2555 2647 2654 2706 2728 2742 2743 2808  
FG: \*001\* 011 028 04- 062 063 064 072 151 153 16- 163 225 246 344 431 435  
438 466 467 47& 470 471 477 506 575 582 596 623 627 643 658 659  
683 688 694 720 722 725 726

L26 ANSWER 9 OF 10 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD  
AN 1980-58852C [34] WPIDS  
TI Removal of surface and vol. contamination of polymer electrets -

by treatment with inert solvent at b.pt..

DC A85 L03 V01 V06

PA (DEAK) AKAD WISSENSCHAFTEN DDR

CYC 1

PI DD 141880 A 19800521 (198034)\*

PRAI DD 1978-208888 19781106

IC H01G004-00

AB DD 141880 A UPAB: 19930902

Polymer **electrets**, esp. in foil or film form, are treated before shaping and/or metallising with a fluid which does not dissolve the polymer, in a closed system at b. pt. of the fluid, for 1-50 (10-20) mins., and heated subsequently pref. at 10-20 degrees C above the b.pt.

Used for treatment of components for **condenser** microphones, piezoelectric transducers, etc. Dust particles, grease layers, oil residues from vacuum pumps, etc. are removed, giving improved stability of the **electret** charge and polarisation, and better reproducibility of piezo- and pyro-electric effects. Quality of **vapour**-deposited metal coatings is also improved.

FS CPI EPI

FA AB

MC CPI: A12-E; A12-E12; L03-A; L03-D04D

EPI: V01-B02B; V06-E03

PLC UPA 19930924

KS: 0210 0215 0229 2382 2393 2400 2464 2481 2483 2498 2500 2513 2522 2555  
2575 2659 2742 2743 0949 0963 0843

FG: \*001\* 011 03- 034 062 064 087 089 27& 352 402 405 414 420 435 456 459  
} 466 470 471 502 506 532 537 597 600 623 627 694 721 722

FG: \*002\* 011 03- 062 064 071 352 402 405 414 420 435 456 459 466 470 471  
502 506 532 537 597 600 623 627 688 694 721 722

L26 ANSWER 10 OF 10 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD

AN 1975-56440W [34] WPIDS

TI **Electret** production - by polarising high polymer dielectric contg liq crystal.

DC A35 A85 L03 V01 V06 X12

PA (NIRAI) UNITIKA LTD

CYC 1

PI JP 50021679 B 19750724 (197534)\*

PRAI JP 1970-83685 19700924

IC H01G007-02; H04R019-00

AB JP 75021679 B UPAB: 19930831

Method of making an **electret** comprises polarising a formed high polymer body of dielectric contg. liquid crystal matl. in a strong DC electric field. The **electret** obtained is used for a **condenser** microphone and a potentiometer.

FS CPI EPI

FA AB

MC CPI: A12-E08; L03-B03

PLC UPA 19930924

FG: \*001\* 012 04- 427 466 470 506 507 623 627 694 722 726

L2 2923250 SEA FILE=HCAPLUS ABB=ON PLU=ON (VAPOR OR VAPOUR OR LIQUID?  
OR WATER OR FLUROCARBON? OR AQUEOUS?)  
L17 378623 SEA FILE=HCAPLUS ABB=ON PLU=ON ?CONDEN?  
L37 14706 SEA FILE=COMPENDEX ABB=ON PLU=ON L2 (S) L17  
L38 1274 SEA FILE=COMPENDEX ABB=ON PLU=ON ELECTRET?  
L39 1 SEA FILE=COMPENDEX ABB=ON PLU=ON L37 AND L38

=> d all

L39 ANSWER 1 OF 1 COMPENDEX COPYRIGHT 2001 EI  
AN 1995(31):3322 COMPENDEX  
TI Percolation behaviour of electret at presence of water  
condensation.  
AU Kuz'Min, Yu.I. (Electrotechnical Univ, Saint-Petersburg, Russia);  
Pshchelko, N.S.; Sokolova, I.M.; Zakrzhevskiy, V.I.  
MT Proceedings of the 8th International Symposium on Electrets (ISE 8).  
MO IEEE  
ML Paris, Fr  
MD 07 Sep 1994-09 Sep 1994  
SO Proceedings - International Symposium on Electrets 1994. IEEE, Piscataway,  
NJ, USA, 94CH3443-9.p 124-129  
CODEN: PILE8  
PY 1994  
MN 43091  
DT Conference Article  
TC Theoretical; Experimental  
LA English  
AB The time stability of the surface potential of PTFE and silicon dioxide  
electrets at room temperature are similar: after an initial small  
decay the potential is practically constant during a time interval that  
decreases as a humidity increases and then is drastically drops. The time  
stability of the surface potential is correlated with a potential relief  
of an electret sample. The presence of charge on a dielectric  
surface stimulates a process of the water condensation  
. A behavior of electrets in wet atmosphere is explained in terms  
of the percolation model that includes process of a nucleation and a  
growth of conductive clusters. A theoretical consideration within a  
framework of this model and experimental results are presented. (Author  
abstract) 4 Refs.  
CC 708.1 Dielectric Materials; 933 Solid State Physics; 815.1.1 Organic  
Polymers; 804.2 Inorganic Components; 443.1 Atmospheric Properties; 701.1  
Electricity: Basic Concepts and Phenomena  
CT \*Electrets; Conductive materials; Atmospheric humidity; Electric  
charge; Condensation; Nucleation; Mathematical models; Percolation (solid  
state); Polytetrafluoroethylenes; Silica  
ST Conductive clusters; Time stability; Surface potential

L2 2923250 SEA FILE=HCAPLUS ABB=ON PLU=ON (VAPOR OR VAPOUR OR LIQUID?  
OR WATER OR FLUOCARBON? OR AQUEOUS?)  
L17 378623 SEA FILE=HCAPLUS ABB=ON PLU=ON ?CONDEN?  
L40 32279 SEA FILE=IFIPAT ABB=ON PLU=ON L2 (S) L17  
L41 708 SEA FILE=IFIPAT ABB=ON PLU=ON ELECTRET?  
L42 4 SEA FILE=IFIPAT ABB=ON PLU=ON L40 (S) L41

=> d bib kwic 1-  
YOU HAVE REQUESTED DATA FROM 4 ANSWERS - CONTINUE? Y/(N):y

L42 ANSWER 1 OF 4 IFIPAT COPYRIGHT 2001 IFI  
AN 2249661 IFIPAT;IFIUDB;IFICDB  
TI METHOD FOR THE PRODUCTION OF AN ELECTRET SHEET; ELECTRIFICATION OF POROUS  
SHEET HAVING SPACED PARTICLES ON SURFACE  
INF Takase, Satoshi, Ohtsu, JP  
Tani, Yatsuhiko, Ohtsu, JP  
IN Takase Satoshi (JP); Tani Yatsuhiko (JP)  
PAF Toyo Boseki Kabushiki Kaisha, Osaka, JP  
PA Toyo Boseki K K JP (85320)  
EXNAM Pianalto, Bernard  
AG Leydig, Voit & Mayer  
PI US 5110620 19920505 (CITED IN 013 LATER PATENTS)  
AI US 1991-770564 19911003  
XPD 5 May 2009  
RLI US 1988-276617 19881128 DIVISION  
PRAI JP 1987-301302 19871128  
JP 1988-85985 19880406  
FI US 5110620 19920505  
DT UTILITY  
FS CHEMICAL  
CLMN 8  
GI 2 Drawing Sheet(s), 3 Figure(s).  
ACLM 2. A method of manufacturing the **electret** sheet according to  
claim 1, wherein said solid material is heated to vaporize and then the  
porous sheet is treated with **vapors** of the material or  
**condensation** particles of said **vapors** in said step of  
adding the solid material to the porous sheet.

L42 ANSWER 2 OF 4 IFIPAT COPYRIGHT 2001 IFI  
AN 1757695 IFIPAT;IFIUDB;IFICDB  
TI APPARATUS FOR ELECTROSTATIC FILTRATION OF N2O4 FOR REMOVAL OF SOLID AND  
VAPOR CONTAMINANTS  
INF Breisacher, Peter, Palos Verdes Peninsula, CA  
Chang, Elfreda T, Los Angeles, CA  
Mahadevan, Parameswar, Fullerton, CA  
IN BREISACHER PETER; CHANG ELFREDA T; MAHADEVAN PARAMESWAR  
PAF The United States of America as represented by the Secretary of the Air  
Force, Washington, DC  
PA U S OF AMERICA AIR FORCE SECRETARY OF (86520)  
EXNAM Bascomb, Wilbur  
AG Collier, Stanton E  
Singer, Donald J  
PI US 4657639 19870414 (CITED IN 010 LATER PATENTS)  
AI US 1985-740107 19850531  
XPD 31 May 2005  
FI US 4657639 19870414  
DT UTILITY; EXPIRED  
FS CHEMICAL  
OS CA 110:41506  
GOVI The invention described herein may be manufactured and used by or for  
the Government for governmental purposes without the payment of any  
royalty thereon.  
MRN 004467 MFN: 0099

CLMN 1  
GI 1 Drawing Sheet(s), 3 Figure(s).  
ECLM . . . FILTRATION OF VAPOURS N2O4, SAID APPARATUS REMOVING SUBSTANTIAL AMOUNTS OF IRON CONTAMINANTS, SAID APPARATUS COMPRISING: A STILL FOR FORMING A VAPOR OF SAID N2O4, SAID STILL OPERATING AT ABOUT AMBIENT TEMPERATURES, SAID VAPOR FLOWING FROM SAID STILL BY A FIRST PIPE; AN ELECTRET VAPOR FILTER FOR RECEIVING SAID VAPOR FROM SAID STILL BY SAID FIRST PIPE, SAID ELECTRET VAPOR FILTER COMPRISING A FILTERING SECTION RECEIVING VAPOR FROM SAID STILL AND OUTPUTTING A FILTERED VAPOR, SAID FILTERING SECTION HAVING THEREIN A PLURALITY OF ELECTRET FILTER LAYERS SEPARATED BY WASHERS, SAID FILTER HAVING A BLOCKING FILTER LAYER POSITIONED DOWNSTREAM OF SAID PLURALITY OF ELECTRET FILTER LAYERS TO INCREASE THE RESIDENT TIME THAT SAID VAPOR INTERACTS WITH SAID FILTER, SAID FILTERED VAPOR FLOWING FROM SAID FILTER BY A SECOND PIPE; A FIRST FLOW CONTROL MEANS FOR RECEIVING SAID FILTERED VAPOR BY SAID SECOND PIPE AND OUTPUTTING SAID FILTERED VAPOR BY A THIRD PIPE; A MANIFOLD FOR RECEIVING SAID FILTERED VAPOR FROM SAID FIRST FLOW CONTROL MEANS BY SAID THIRD PIPE; A SECOND FLOW CONTROL MEANS FOR RECEIVING SAID FILTERED VAPOR FROM SAID MANIFOLD BY A FOURTH PIPE; A RECEIVER, SAID RECEIVER CONNECTED TO RECEIVE SAID FILTERED VAPOR FROM SAID SECOND FLOW CONTROL MEANS BY A FIFTH PIPE, SAID RECEIVER HAVING THEREIN A CONTAINER FOR RECEIVING SAID FILTERED VAPOR, SAID CONTAINER BEING AT A TEMPERATURE TO CONDENSE SAID FILTERED VAPOR INTO A FILTERED FLUID OF N2O4, AND A MEANS FOR CLEANSING SAID MANIFOLD, AND SAID FIRST AND SAID SECOND FLOW.

L42 ANSWER 3 OF 4 IFIPAT COPYRIGHT 2001 IFI  
AN 1350856 IFIPAT; IFIUDB; IFICDB  
TI ELECTRETS; VAPOR DEPOSITED PARYLENE FILM  
INF Nowlin, Thomas E, Somerset, NJ  
Raschke, Curt R, Dallas, TX  
IN NOWLIN THOMAS E; RASCHKE CURT R  
PAF Union Carbide Corporation, New York, NY  
PA UNION CARBIDE CORP (87136)  
EXNAM Herbert, Jr, Thomas J  
AG McCarthy, Jr, Frederick J  
PI US 4291245 19810922 (CITED IN 011 LATER PATENTS)  
AI US 1979-72303 19790904  
XPD 4 Sep 1999  
FI US 4291245 19810922  
DT UTILITY; REASSIGNED  
FS CHEMICAL ELECTRICAL  
CHEMICAL  
ELECTRICAL  
CLMN 6  
AB A process for preparing polymer electrets comprising the following steps: (a) providing a parylene film having one side affixed to a metal layer and grounding said . . . of the film with a direct current corona, the charge being of sufficient magnitude to convert the film to an electret; (c) providing p-xylylene monomer . . . vapor in sufficient amount to coat the charged film; and (d) introducing the vapor from step (c) and the electret into a deposition zone, said zone being under vacuum and at a temperature at which the vapor will condense, whereby the electret is conformally coated with parylene.  
ECLM 1. A PROCESS FOR PREPARING POLYMER ELECTRETS COMPRISING THE FOLLOWING STEPS: (A) PROVIDING A PARYLENE FILM HAVING ONE SIDE AFFIXED TO A METAL LAYER AND GROUNDING SAID . . . OF THE FILM WITH A DIRECT CURRENT CORONA, THE CHARGE BEING OF SUFFICIENT MAGNITUDE TO CONVERT THE FILM TO AN ELECTRET; (C) PROVIDING A P-XYLYLENE MONOMER VAPOR IN SUFFICIENT AMOUNT TO COAT THE CHARGED FILM; AND (D) INTRODUCING THE VAPOR FROM STEP (C) AND THE ELECTRET INTO A DEPOSITION ZONE, SAID ZONE BEING UNDER VACUUM AND AT A TEMPERATURE AT WHICH THE VAPOR WILL CONDENSE, WHEREBY THE ELECTRET IS CONFORMALLY COATED WITH PARYLENE.

4. AN ELECTRET COMPRISING, IN COMBINATION, (I) A METAL LAYER COATED WITH A FILM OF PARYLENE, SAID PARYLENE FILM HAVING A SURFACE CHARGE; . . .

L42 ANSWER 4 OF 4 IFIPAT COPYRIGHT 2001 IFI  
AN 1350855 IFIPAT; IFIUDB; IFICDB  
TI ELECTRETS; DIPOSE ORIENTATION OF A VAPOR DEPOSITED PARYLENE FILM  
INF Beach, William F, Bridgewater, NJ  
Mahoney, Dennis M, Long Valley, NJ  
IN BEACH WILLIAM F; MAHONEY DENNIS M  
PAF Union Carbide Corporation, New York, NY  
PA UNION CARBIDE CORP (87136)  
EXNAM Herbert, Jr, Thomas J  
AG McCarthy, Jr, Frederick J  
PI US 4291244 19810922 (CITED IN 012 LATER PATENTS)  
AI US 1979-72302 19790904  
XPD 4 Sep 1999  
FI US 4291244 19810922  
DT UTILITY; REASSIGNED  
FS CHEMICAL ELECTRICAL  
CHEMICAL  
ELECTRICAL  
CLMN 8  
AB A process for preparing polymer **electrets** comprising the following steps: (a) providing two electrodes in a deposition zone, said electrodes being in a spaced relationship to. . . voltage source capable of impressing an intense electric field between the opposing surfaces; (b) providing a dipolar substituted p-xylylene monomer **vapor** in sufficient amount to coat the opposing surfaces of the electrodes; (c) activating the power source; and (d) introducing the **vapor** from step (b) into the deposition zone, said zone being under vacuum and at a temperature at which the **vapor** will **condense**, whereby the **vapor condenses** on the opposing surfaces of the electrodes, the monomer polymerizing to parylene, coating said surfaces, and forming **electrets**.  
ECLM 1. A PROCESS FOR PREPARING POLYMER **ELECTRETS** COMPRISING THE FOLLOWING STEPS: (A) PROVIDING TWO ELECTRODES IN A DEPOSITION ZONE, SAID ELECTRODES BEING IN A SPACED RELATIONSHIP TO. . . EXTERNAL VOLTAGE SOURCE CAPABLE OF IMPRESSING AN INTENSE ELECTRIC FIELD BETWEEN THE OPPOSING SURFACES; (B) PROVIDING A DIPOLAR P-XYLYLENE MONOMER **VAPOR** IN SUFFICIENT AMOUNT TO COAT THE OPPOSING SURFACES OF THE ELECTRODES; (C) ACTIVATING THE POWER SOURCE TO PROVIDE SUFFICIENT POTENTIAL TO ALIGN THE DIPOLES OF THE P-XYLENE MONOMER COAT; AND (D) INTRODUCING THE **VAPOR** FROM STEP (B) INTO THE DEPOSITION ZONE, SAID ZONE BEING UNDER VACUUM AND AT A TEMPERATURE AT WHICH THE **VAPOR WILL CONDENSE**, WHEREBY THE **VAPOR** **CONDENSES** ON THE OPPOSING SURFACES OF THE ELECTRODES, THE MONOMER POLYMERIZING THE PARYLENE, COATING SAID SURFACES, AND FORMING **ELECTRETS**.  
4. AN **ELECTRET** COMPRISING, IN COMBINATION, A CONDUCTIVE METAL LAYER COATED WITH A FILM OF A DIPOLAR PARYLENE, SAID PARYLENE FILM HAVING ALIGNED.

L2 2923250 SEA FILE=HCAPLUS ABB=ON PLU=ON (VAPOR OR VAPOUR OR LIQUID?  
OR WATER OR FLUOCARBON? OR AQUEOUS?)  
L3 2917 SEA FILE=HCAPLUS ABB=ON PLU=ON ?ELECTRET?  
L17 378623 SEA FILE=HCAPLUS ABB=ON PLU=ON ?CONDEN?  
L25 67512 SEA FILE=WPIDS ABB=ON PLU=ON L2 (S) L17  
L43 5 SEA FILE=INSPEC ABB=ON PLU=ON L3 AND L25

=> d all 1-  
YOU HAVE REQUESTED DATA FROM 5 ANSWERS - CONTINUE? Y/(N):y

L43 ANSWER 1 OF 5 INSPEC COPYRIGHT 2001 IEE  
AN 1995:5085669 INSPEC DN A9522-7750-008; B9512-2810D-016  
TI The percolation behaviour of **electret** at presence of  
**water condensation**.  
AU Kuz'min, Yu.I. (A.F. Ioffe Physicotech. Inst., Acad. of Sci., St.  
Petersburg, Russia); Pshchelko, N.S.; Sokolova, I.M.; Zakrzhevskiy, V.I.  
SO 8th International Symposium on Electrets. ISE 8 Proceedings (Cat.  
No.94CH3443-9)  
Editor(s): Lewiner, J.; Morisseau, D.; Alquie, C.  
New York, NY, USA: IEEE, 1994. p.124-9 of xxv+1046 pp. 4 refs.  
Conference: Paris, France, 7-9 Sept 1994  
Sponsor(s): IEEE Dielectr. & Electr. Insulation Soc  
Price: CCCC 0 7803 1939 7/94/\$4.00  
ISBN: 0-7803-1940-0  
DT Conference Article  
TC Practical; Experimental  
CY United States  
LA English  
AB The time stability of the surface potential of PTFE and silicon dioxide  
**electrets** at room temperature are similar: after an initial small  
decay the potential is practically constant during a time interval that  
decreases as humidity increases and then drastically drops. The time  
stability of the surface is correlated with potential relief of an  
**electret** sample. The presence of charge on a dielectric surface  
stimulates the process of **water condensation**. The  
behavior of **electrets** in a wet atmosphere is explained in terms  
of the percolation model that includes the process of nucleation and  
growth of conductive clusters. A theoretical consideration within a  
framework of this model and experimental results are presented.  
CC A7750 Dielectric breakdown and space-charge effects; A7730 Dielectric  
polarization and depolarization effects; A7325 Surface conductivity and  
carrier phenomena; B2810D Dielectric breakdown and discharges; B2830C  
Organic insulation  
CT CONDENSATION; ELECTRETS; ELECTRIC BREAKDOWN; HUMIDITY; ORGANIC  
INSULATING MATERIALS; PERCOLATION; POLYMERS; SILICON COMPOUNDS; SURFACE  
CONDUCTIVITY; SURFACE POTENTIAL  
ST percolation behaviour; **electret**; **water condensation**;  
time stability; surface potential; PTFE; SiO<sub>2</sub>; room temperature; humidity  
increases; potential relief; dielectric surface; percolation model; 20 C;  
H<sub>2</sub>O  
CHI SiO<sub>2</sub> sur, O<sub>2</sub> sur, Si sur, O sur, SiO<sub>2</sub> bin, O<sub>2</sub> bin, Si bin, O bin; H<sub>2</sub>O bin,  
H<sub>2</sub> bin, H bin, O bin  
PHP temperature 2.93E+02 K  
ET O\*Si; SiO<sub>2</sub>; Si cp; cp; O cp; H\*O; H<sub>2</sub>O; H cp; SiO; O; Si; H  
  
L43 ANSWER 2 OF 5 INSPEC COPYRIGHT 2001 IEE  
AN 1990:3566084 INSPEC DN A90033238; B90016077  
TI Low pump power performance of optoacoustic discriminator for CH<sub>3</sub>OH FIR  
laser.  
AU Wallace, T.L.; Ventrice, C.A. (Dept. of Electr. Eng., Tennessee Technol.  
Univ., Cookeville, TN, USA)  
SO Review of Scientific Instruments (Sept. 1989) vol.60, no.9, p.3074-5. 3  
refs.

Price: CCCC 0034-6748/89/093074-02\$01.30

CODEN: RSINAK ISSN: 0034-6748

DT Journal

TC Practical; Experimental

CY United States

LA English

AB The resonance enhancement of an optoacoustic signal is used to obtain a reliable discriminator in order to stabilize the output frequency of a CO<sub>2</sub> laser. The CO<sub>2</sub> laser is maintained on the 9P(36) emission line, the methyl alcohol **vapor** pressure within the acoustic cell is maintained at a value p<sub>g</sub>=1 Torr, and the chopper frequency is fixed at the fundamental longitudinal resonant frequency of the cylindrical resonator throughout the experiment. Utilizing a back **electret condenser** microphone to detect the optoacoustic signal, a reliable discriminator is obtained for a value of pump power as low as 10 mW.

CC A4260B Design of specific laser systems; A4255D CO/sub 2 lasers; A4255H Lasing action in other gas lasers; B4320M Laser accessories and instrumentation; B4320C Gas lasers

CT ACOUSTIC RESONATORS; CARBON COMPOUNDS; DISCRIMINATORS; GAS LASERS; LASER ACCESSORIES; LASER FREQUENCY STABILITY; OPTICAL PUMPING; ORGANIC COMPOUNDS; PHOTOACOUSTIC EFFECT

ST far IR; acoustic resonator; laser frequency stability; optoacoustic discriminator; resonance enhancement; optoacoustic signal; methyl alcohol vapor pressure; acoustic cell; chopper frequency; cylindrical resonator; **back electret condenser microphone**; 1 Torr; 10 mW; CO<sub>2</sub>

CHI CO<sub>2</sub> bin, O<sub>2</sub> bin, C bin, O bin

PHP pressure 1.3E+02 Pa; power 1.0E-02 W

ET C\*H\*O; CH<sub>3</sub>OH; C cp; cp; H cp; O cp; C\*O; CO<sub>2</sub>; CO; O

L43 ANSWER 3 OF 5 INSPEC COPYRIGHT 2001 IEE

AN 1983:2120885 INSPEC DN A83102801

TI The **electret** effect in **water vapour condensates** and phase transformation in ice.

AU Chrzanowski, J.; Sujak, B. (Inst. of Experimental Phys., Univ. of Wroclaw, Wroclaw, Poland)

SO Acta Physica Polonica A (July 1983) vol.A64, no.1, p.107-13. 25 refs.  
CODEN: ATPLB6 ISSN: 0587-4246

DT Journal

TC Experimental

CY Poland

LA English

AB A correlation between the known phase transformations of ice cryocondensates and the generation of surface charges during **condensation** process of **water vapour** onto a cold substrate is discussed. The main source of the observed **electret** effect seems to be a low temperature polarization process of the molecular dipoles. Local changes of the dielectric permittivity associated with the first order phase transformations may affect the experimentally observed **electret** effect.

CC A6470F Liquid-vapour transitions; A6470K Solid-solid transitions; A7720 Permittivity; A7730 Polarization and depolarization effects

CT CONDENSATION; ELECTRETS; ICE; PERMITTIVITY; SOLID-STATE PHASE TRANSFORMATIONS

ST **electret; water vapour condensates; phase transformations; ice cryocondensates; surface charges; condensation; dielectric permittivity; first order phase transformations**

L43 ANSWER 4 OF 5 INSPEC COPYRIGHT 2001 IEE

AN 1983:2088926 INSPEC DN A83082433

TI Electric charge generation in benzene-**water** mixtures during **condensation** at low temperatures.

AU Chrzanowski, J.; Sujak, B. (Inst. of Experimental Phys., Univ. of Wroclaw, Wroclaw, Poland)

SO Thin Solid Films (27 May 1983) vol.103, no.4, p.417-21. 13 refs.

Price: CCCC 0040-6090/83/\$3.00

CODEN: THSFAP ISSN: 0040-6090

DT Journal

• TC Experimental  
CY Switzerland  
LA English  
AB It was found that, during the **condensation** of binary benzene-water mixtures from the gas phase, electric charges are generated. Several processes which may be responsible for this phenomenon are discussed. It seems that one of these may be a hypothetical chemical reaction in the **condensate** layers producing ethanol molecules.  
CC A6470F Liquid-vapour transitions; A7730 Polarization and depolarization effects  
CT CONDENSATION; **ELECTRETS**; MIXTURES; ORGANIC COMPOUNDS; WATER  
ST electric charge generation; **electret effect**; benzene-water mixtures; condensation; low temperatures; chemical reaction

L43 ANSWER 5 OF 5 INSPEC COPYRIGHT 2001 IEE  
AN 1982:1834004 INSPEC DN A82036528; B82020452  
TI Charge storage in nonmetallized PFA film.  
AU Hilczer, B.; Kulek, J.; Medycki, W. (Inst. of Molecular Phys., Acad. of Sci., Poznan, Poland)  
SO Ferroelectrics (Oct. 1981) vol.39, no.1-4, p.1244. 2 refs.  
CODEN: FEROA8 ISSN: 0015-0193  
Conference: 5th International Meeting on Ferroelectricity (IMF-5).  
University Park, PA, USA, 17-21 Aug 1981  
Sponsor(s): IUPAP; Office Naval Res.; Army Res. Office; et al  
DT Conference Article; Journal  
TC Practical; Experimental  
CY United Kingdom  
LA English  
AB Summary form only given, as follows. Nonmetallized **electrets** are advantageous for applications in **electret** electro-acoustical transducers based on the three layer **condenser**. The authors have modified the breakdown method and charging using a nonwetting liquid to produce nonmetallized PFA **electrets** by application of additional dielectric inserts. The surface density of **electrets** thus produced is discussed as dependent on the thickness and dielectric properties of the insert. Very stable (in time and temperature) PFA **electrets** of charge density on order of  $10^{-5}$  C/m<sup>2</sup> are obtained using these methods. The effective charge stored was found to be located near the middle of the foil after the ageing procedure. Moreover, the way of surface charge density estimation of nonmetallized **electrets** is proposed.  
CC A7340B Static electrification; A7730 Polarization and depolarization effects; A7755 Dielectric thin films; B2810F Piezoelectric and ferroelectric materials  
CT DIELECTRIC THIN FILMS; **ELECTRETS**; FOILS; POLYMER FILMS; STATIC ELECTRIFICATION  
ST nonmetallized perfluoroalkoxy film; charge storage; **electret** **electro-acoustical transducers**; breakdown method; nonwetting liquid; dielectric inserts; PFA; foil; ageing; surface charge density

L1        1058 SEA FILE=WPIX ABB=ON PLU=ON 3M/PA  
L2        9 SEA FILE=WPIX ABB=ON PLU=ON ?ELECTRET? AND L1

=> d max 1-

YOU HAVE REQUESTED DATA FROM 9 ANSWERS - CONTINUE? Y/(N):y

L2        ANSWER 1 OF 9 WPIX     COPYRIGHT 2001     DERWENT INFORMATION LTD  
AN        2001-161074 [17]     WPIX  
DNN        N2001-117444     DNC C2001-048186  
TI        Filter device for use as a high efficiency medical breathing system filter  
          comprises fluid chamber having pleated filtration medium comprising  
          non-woven web of **electret** charged fibers of thermoplastic resin.  
DC        A96 J01 P34  
IN        DE JONG, G; KRAPP, J T  
PA        (MINN) **3M INNOVATIVE PROPERTIES CO**  
CYC        25  
PI        EP 1068889     A1 20010117 (200117)\* EN 13p     B01D039-16  
          R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT  
          RO SE SI  
ADT        EP 1068889 A1 EP 1999-202349 19990716  
PRAI        EP 1999-202349 19990716  
IC        ICM B01D039-16  
          ICS A61M016-10  
AB        EP 1068889 A UPAB: 20010328  
NOVELTY - A filter device comprises a housing having a fluid chamber  
connecting to two fluid ports. The fluid chamber has a volume of not more  
than 140 ml and comprises a pleated filtration medium for capturing  
bacteria and viral material. The medium comprises a non-woven web of  
**electret** charged fibers, of a nonconductive thermoplastic resin,  
having a resistivity of at least 10<sup>14</sup> ohm-cm. The web has an effective  
diameter (EFD) of not more than 5 mu m.  
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for a method  
of filtering breathable air comprising passing breathable air to be  
inspired and expired by a patient through the above filter device.  
USE - As a high efficiency medical breathing system filter and for  
connection to the respiratory tract of a patient.  
ADVANTAGE - The filter device has an efficiency of at least 99.97%  
for NaCl particles of 0.3 micro m at a flow challenge of 30 l/minute. The  
filter device shows similar or improved efficiency in removing  
microorganism from the air at a lower pressure drop as compared to a glass  
fiber based filter. It can be provided in various shapes including a  
substantially cylindrical shape and the dead volume of the filter device  
can be reduced. The filtration medium allows minimizing the volume of the  
filter chamber and has a hydrostatic pressure.  
Dwg. 0/2  
TECH EP 1068889 A1 UPTX: 20010328  
TECHNOLOGY FOCUS - INSTRUMENTATION AND TESTING - Preferred Filter device:  
The filter device further comprises a heat and moisture exchange  
filtration medium, which is a substrate impregnated with a hygroscopic  
material. The fluid chamber comprises a cylindrical and a central portion.  
The fluid ports has a diameter less than the cross-section of the central  
portion and is connected to a conduit that is in fluid communication with  
the trachea of a patient and the other fluid port is connected to a  
further conduit connecting to a breathing apparatus. The volume occupied  
by filter medium is less than 60 ml.

TECHNOLOGY FOCUS - POLYMERS - Preferred Components: The thermoplastic  
resin is a polyolefin. The non-woven filter web has a basis weight (BW) of  
less than 60 (preferably 10-40) g/m<sup>2</sup> and a penetration (PEN) of less than  
0.03%. The ratio of BW/EFD-PEN is more than 200. The web has an EFD of 1-4

microns.

ABEX EP 1068889 A1 UPTX: 20010328

EXAMPLE - A polypropylene resin composition was prepared by melt compounding CHIMASSORB 944 FL (RTM; a hindered amine)(0.8 wt.%) into TPX DX 820 (poly(4-methyl-1-pentene)) (1.2 wt.%) in a single screw extruder in a 40:60 ratio and the resultant blend was extruded into a fiber. The fiber was ground to a powder and was added to the polypropylene pellet feed (98 wt.%) during preparation of the based blown microfiber (BMF) webs. A BMF web was prepared using a melt blowing process. The flow tube connecting the extruder to the die was maintained at 340 degrees C and the primary air was maintained at 400 degrees C and 690 kPa with a 0.102 cm gap width, to produce a uniform web. The above obtained polypropylene resin composition was delivered from the die at a rate of 0.16 g/hole/minute and the resulting web collected on a perforated rotating belt collector. Increasing the rotational speed of the collector rather than reducing the resin delivery rate obtained the lower basis weight BMF webs. The average effective fiber diameter (EFD) for the webs produced was 2.7 microns. The webs produced were charged using a hydro-charging process as described in US5496507 using a water pressure of 550 kPa. The obtained filter web was provided on both sides with a cover web of 15 g/m<sup>2</sup>. This construction was further provided on both sides with a Vexar (RTM; netting) to yield a filter medium. The filtration medium was produced by inserting the filter medium into a cylindrical fluid chamber and sealing the filter medium to the fluid chamber wall. A polyurethane resin (sealant) was dropped into the filter device while rotating that device, forcing the polyurethane resin outwardly to the interface of the filter medium and the fluid chamber wall. The filter had a filter diameter of 70 mm, a pleat height of 15 mm, a distance between adjacent pleats of 2-4 mm, and the basis weight of the web was 20 g/m<sup>2</sup> and the volume of the fluid chamber of 99 ml. A comparative filter device was PALL BB 100 (RTM; glass fiber based filter). The inventive filter device/the comparative filter device showed the following results: sodium chloride filter efficiency = 99.997/99,990%; bacterial removal efficiency = 99.9996560/99.9999800%, virus removal efficiency = 99.9996770/99.9986000, hydrostatic pressure = 100/93 cm of water and pressure drop = 6.88/11.60 mm of water.

FS CPI GMPI

FA AB

MC CPI: A12-V03B; J01-H

PLE UPA 20010328

[1.1] 018; G0033-R G0022 D01 D02 D51 D53; H0317; S9999 S1183 S1161  
S1070; S9999 S1070-R; S9999 S1514 S1456; S9999 S1387; S9999  
S1241 S1229 S1070; H0000; H0011-R; P1150  
[1.2] 018; R00964 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83;  
H0000; H0317; S9999 S1183 S1161 S1070; S9999 S1070-R; S9999  
S1514 S1456; S9999 S1387; S9999 S1241 S1229 S1070; P1150; P1343  
[1.3] 018; R15485 G0044 G0033 G0022 D01 D02 D12 D10 D53 D51 D58 D86;  
H0317; S9999 S1183 S1161 S1070; S9999 S1070-R; S9999 S1514  
S1456; S9999 S1387; S9999 S1241 S1229 S1070; H0000; P1150  
[1.4] 018; B9999 B3270 B3190; N9999 N5970-R; N9999 N6155; N9999 N6428;  
B9999 B5254 B5243 B4740; N9999 N7090 N7034 N7023; B9999 B5447  
B5414 B5403 B5276; N9999 N7294; B9999 B3292-R B3190; K9745-R;  
N9999 N6020 N6008  
[1.5] 018; ND01; Q9999 Q8026 Q7987; Q9999 Q7567; N9999 N7147 N7034  
N7023; K9574 K9483; K9676-R; K9416  
[1.6] 018; A999 A544 A486; K9869 K9847 K9790  
[2.1] 018; P1592-R F77 D01  
[2.2] 018; Q9999 Q9007; K9518 K9483  
[2.3] 018; ND01; Q9999 Q8026 Q7987; Q9999 Q7567; N9999 N7147 N7034  
N7023; K9574 K9483; K9676-R; K9416  
[3.1] 018; D01 D11 D10 D23 D22 D33 D76 D41 D45 D50 D95 F19 F10 F07;  
A999 A782; A999 A544 A486; K9869 K9847 K9790; P1105-R D01 F07

L2 ANSWER 2 OF 9 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD

AN 2001-158937 [16] WPIX

DNC C2001-047108

TI Alkylated fluoroochemical oligomeric compounds useful in films, sheets, fibers and oily mist resistant electret filter comprise

fluorochemical oligomeric portion linked to aliphatic backbone through linking group.  
 DC A60 A85 E19 F01 J01  
 IN DAMS, R J; JARIWALA, C P; JONES, M E; KLUN, T P  
 PA (MINN) 3M INNOVATIVE PROPERTIES CO  
 CYC 87  
 PI WO 2000068189 A1 20001116 (200116)\* EN 51p C07C323-52  
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL  
 OA PT SD SE SL SZ UG ZW  
 W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES  
 FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS  
 LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ  
 TM TR TT UA UG UZ VN YU ZA ZW  
 AU 9958001 A 20001121 (200117) C07C323-52  
 ADT WO 2000068189 A1 WO 1999-US20063 19990901; AU 9958001 A AU 1999-58001  
 19990901  
 FDT AU 9958001 A Based on WO 200068189  
 PRAI US 1999-309836 19990511  
 IC ICM C07C323-52  
 ICS C08K005-375; C08K005-435; D06M013-252  
 AB WO 200068189 A UPAB: 20010323  
 NOVELTY - An alkylated fluorochemical oligomeric compound (1) comprises a fluorochemical oligomeric portion (a); an aliphatic moiety and a linking group.  
 DETAILED DESCRIPTION - An alkylated fluorochemical oligomeric compound (1) comprises: a fluorochemical oligomeric portion (a); an aliphatic moiety and a linking group. (a) has several fluoroaliphatic group each linked to a carbon atom of the aliphatic backbone through an organic linker and each group has a fully fluorinated terminal group.  
 INDEPENDENT CLAIMS are also included for:  
 (A) a synthetic organic polymer composition comprising (1) and a synthetic organic polymer;  
 (B) shaped articles such as films, sheets and fibers comprising a melt-processable thermoplastic polymer and (1); and  
 (C) an oily mist resistant **electret** filter medium comprising a polypropylene **electret** fibers and (1).  
 USE - In synthetic organic polymer composition, shaped article such as films, sheets, fibers and as oily mist resistant **electret** filter medium (claimed). The films and sheets may be used in electrostatic element such as microphones, headphones, speakers, in dust particle control, high voltage electrostatic generator, electrostatic recorders, etc. As tropical treatments for fibrous substrates such as textiles and fabrics and as polymer melt additives to provide desirable oil, water and stain repellency to shaped articles. In preparation of non-woven fabrics used in medical gowns, drapes and masks. The films are useful moisture and/or grease-resistance packaging, release liners and as multilayer constructions. The filter medium is useful as an air filter element of a respirator such as a face mask or for such purposes as heating, ventilation and air-conditioning.  
 ADVANTAGE - The compound imparts oil, water and stain repellency to the surface of the shaped articles. In medical gowns, drapes and masks the compound provides repellency to bodily fluids.  
 Dwg. 0/0  
 TECH WO 200068189 A1UPTX: 20010323  
 TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Compound: (1) is compound of formula ((A)<sub>m</sub>-L)<sub>n</sub>R or (A)<sub>m</sub>(L-R)<sub>n</sub>.  
 m = 1 or 2;  
 n = 1 - 10;  
 L = linking group (preferably covalent bond, straight, branched or cyclic alkylene, arylene, aralkylene, oxy, oxo, hydro, thio, sulfonyl, sulfoxy, amino, imino, sulfonamido, carboxamido, carbonylolxy, urethanylene and/or ureylene);  
 R = organic aliphatic moiety (preferably 1-75C alkyl);  
 A = group of formula (I);  
 a = integer such that A is oligomeric and comprises many Rf groups (preferably 3 - 8);  
 R1 = H, halogen or 1-4C alkyl (straight or branched);

R2 = H, 1-4C alkyl (straight or branched);  
Rf = fluoroaliphatic group (preferably 4-14C perfluorinated alkyl);  
Q = covalent bond or an organic linking group (preferably  
-SO2NR'1(CH2)kO(O)C-, -CONR'1(CH2)kO(O)C-, -(CH2)kO(O)C-,  
-CH2CH(OR'2)CH2O(O)C-, -(CH2)kC(O)O-, -(CH2)kSC(O)-, -(CH2)kO(CH2)kO(O)C-,  
-(CH2)kS(CH2)kO(O)C-, -(CH2)kSO2(CH2)kO(O)C-, -(CH2)kS(CH2)kO(O)C-,  
-(CH2)kSO2NR'1(CH2)kO(O)C-, -(CH2)kSO2-, -SO2NR'1(CH2)kO-,  
-SO2NR'1(CH2)k-, -(CH2)kO(CH2)kC(O)O-, -(CH2)kSO2NR'1(CH2)kC(O)O-,  
-(CH2)kSO2(CH2)kC(O)O-, -CONR'1(CH2)kC(O)O-, -(CH2)kS(CH2)kC(O)O-,  
-CH2CH(OR'2)CH2C(O)O-, -SO2NR'1(CH2)kC(O)O-, and -(CH2)kC-);  
k = 0 - 20;

R'1 = H, phenyl or 1-4C alkyl;

R'2 = 1-20C alkyl.

Preferred Composition: (1) is from 0.5 - 5 wt.% in the polymer composition and comprises 10 - 10000 ppm fluorine in the shape article.

Preferred Filter Medium: The fibers in the **electret** filler medium are annealed and have a diameter of 2 - 30 micrometers.

ABEX WO 200068189 A1UPTX: 20010323

EXAMPLE - A mixture of C8F17SO2N(CH3)C2F4OC(O)CH=CH2 (MeFOSEA)4 (50 g), UNILIN 700(TM) (polyethylene 700 alcohol having about 50C atoms) (13.8 g), methanesulfonic acid (0.5 ml) and toluene (100 ml) was refluxed for 15 hours. Ca(OH)2 (10 g) was added to the hot mixture and solution was filtered. Toluene was removed and remaining solid of (MeFOSEA)4-S-CH2CH2COO-UNILIN 700 (a) (an alkylated fluorochemical oligomeric compound) was dried. A molded casting was made using 3M scotch-Weld 2158 B/A(TM) (thermoset epoxy resin) (4.9 g) and (a) (0.20 g) and a comparative casting was prepared without using (a). The water repellency and oil repellency tests were run on the surface of the cured casting. The rating values corresponded to the highest number test liquid for which a drop, when placed on the surface of the film would not spread. The results of test/comparative for water repellency were 9/1.5 and for oil repellency were 7/0. Desirable value f or the oil repellency test was at least 3 while for the water repellency test, the value was at least 6.

KW [1] 0032-57901 CL NEW; 0032-57902 CL NEW

FS CPI

FA AB; GI; DCN

MC CPI: A04-E10; A04-G03E; A12-E01; A12-G03; A12-H04; A12-S05K; A12-W11A;  
E10-A08; E10-A10A; E10-A10D; E10-A12C1; E10-B01B; E10-B02; E10-B03;  
E10-B04; E10-D03; E10-E04; E10-F02; E10-G02A1; E10-G02B1; E10-G02E;  
E10-H01A; E10-H01C; F01-D05; F01-D10; F03-C02; F03-C02A; F04-E04;  
F04-E05; J01-G03; J01-H

PLE UPA 20010323

[1.1] 018; G0022-R D01 D51 D53 D11 D10 D13-R D18-R D60 D63 D69 D86 D87  
D88 D89 D90 D91 D92 D93 D94 D95 F00 F15 F26-R F34 F35-R F41-R  
F61 F63 F64 F70-R F78 F77 O- 6A S- F- 7A 7A-R F04; H0317; S9999  
S1387; S9999 S1285-R; S9999 S1581; S9999 S1070-R; A999 A420-R;  
A999 A782; A999 A431 A420; A999 A442 A420; A999 A453 A420

[1.2] 018; ND04; Q9999 Q7567; B9999 B3509 B3485 B3372; B9999 B5254  
B5243 B4740

[2.1] 018; R00964 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83;  
H0000; S9999 S1070-R; P1150; P1343

[2.2] 018; A999 A420-R; A999 A431 A420; A999 A442 A420; A999 A453 A420

CMC UPB 20010323

M3 \*01\* C316 G010 G019 G100 H581 H582 H598 H599 H6 H600 H601 H608 H609  
H681 H682 H683 H684 H685 H689 J011 J012 J013 J014 J271 J272 J290  
J341 J342 J371 J372 K351 K352 K353 K399 K442 K499 K810 K899 L410  
L462 L463 L471 L472 L499 L640 L650 L660 L699 M210 M211 M212 M213  
M214 M215 M216 M220 M221 M222 M223 M224 M225 M226 M231 M232 M233  
M280 M311 M312 M313 M314 M315 M316 M320 M321 M322 M323 M331 M332  
M333 M334 M340 M342 M343 M344 M349 M362 M381 M383 M391 M392 M414  
M416 M510 M520 M531 M532 M540 M620 M710 M904 M905 Q120 Q322 Q323  
Q431 R042 R043  
DCN: 0032-57901-N

M3 \*02\* H6 H600 H601 H608 H609 H681 H682 H683 H684 H685 H689 M280 M315  
M316 M321 M331 M333 M334 M344 M362 M391 M416 M620 M710 M904 M905  
Q120 Q322 Q323 Q431 R042 R043  
DCN: 0032-57902-N

L2 ANSWER 3 OF 9 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD

AN 2001-091962 [10] WPIX

DNC C2001-027231

TI Self-supporting pleated air filter production, comprises forming pleats in filter media, bonding planar reinforcing strip to pleat tips, positioning reinforcing member in pleats, and cutting to size.

DC J01

IN PITZEN, J F; SUNDET, D C

PA (MINN) 3M INNOVATIVE PROPERTIES CO

CYC 89

PI WO 2001005486 A1 20010125 (200110)\* EN 29p B01D046-52

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL  
OA PT SD SE SL SZ TZ UG ZW

W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES  
FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS  
LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL  
TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

ADT WO 2001005486 A1 WO 1999-US26357 19991108

PRAI US 1999-354416 19990715

IC ICM B01D046-52

AB WO 200105486 A UPAB: 20010220

NOVELTY - Production of a self-supporting, pleated air filter using a fully automated process comprises forming pleats in a filter media, bonding a planar reinforcing strip oriented in the direction of pleating to the pleat tips on the front face of the filter media, positioning a reinforcing member in the pleats along the rear face of the pleated filter, and cutting the pleated filter to size.

DETAILED DESCRIPTION - Production of a self-supporting, pleated air filter using a fully automated process comprises:

(i) forming pleats in a filter media extending along a front face and a rear face, the pleats comprising pleat tips and sloping side surfaces perpendicular to the direction of pleating;

(ii) bonding at least one planar, first reinforcing strip oriented in a direction of pleating to the pleat tips on the front face of the filter media to form a pleated filter capable of machine handling;

(iii) positioning at least one reinforcing member in the pleats along the rear face of the pleated filter; and

(iv) cutting the pleated filter to size.

INDEPENDENT CLAIMS are also included for the following:

(I) two methods for the production of self-supporting, pleated filters;

(II) a further method for the production of a self-supporting, pleated air filter; and

(III) three self-supporting, pleated filters.

USE - Production of a self-supporting, pleated filter with reinforcing structures for air filtration, using e.g. conventional filter media or **electret** filter media.

ADVANTAGE - The pleated filter has reinforcing structures that resist pleat deformation. The filter has good flow characteristics and exhibits sufficient stability so that the pleats do not collapse or deform when subjected to operating pressure.

Dwg.0/9

FS CPI

FA AB

MC CPI: J01-G03

L2 ANSWER 4 OF 9 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD

AN 2000-638239 [61] WPIX

DNN N2000-473408 DNC C2000-191957

TI Vacuum cleaner filter bag comprises at least two sidewalls joined by seams, with first sidewall comprising heat sealable film, and second sidewall comprising synthetic fiber filter.

DC A88 J01 P28 X27

IN ZHANG, Z

PA (MINN) 3M INNOVATIVE PROPERTIES CO

CYC 22

PI WO 2000056421 A1 20000928 (200061)\* EN 32p B01D039-14

RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

W: CA JP KR

US 6156086 A 20001205 (200066) B01D046-02

ADT WO 2000056421 A1 WO 2000-US5979 20000306; US 6156086 A US 1999-273521  
19990322

PRAI US 1999-273521 19990322

IC ICM B01D039-14; B01D046-02

ICS A47L009-14; B01D039-16

AB WO 200056421 A UPAB: 20001128

NOVELTY - A vacuum cleaner filter bag comprises at least two sidewalls joined by thermal seams. First sidewall(s) comprises a film laminate (11) of a heat sealable film layer (13) and a film support layer (12), and second sidewall comprises a filter laminate (21) of synthetic fiber filter layer (23) and synthetic support layer (22).

USE - For vacuum cleaner bag (claimed).

ADVANTAGE - The filter bag has excellent bond strength and functions as high efficient microfiber filter media with HEPA level performance, and is economical.

DESCRIPTION OF DRAWING(S) - The figure shows top elevational view of vacuum filter bag.

Film laminate 11

Film layer 12

Film support layer 13

Filter laminate 21

Filter support layer 22

Filter layer 23

Diffusion layer 24

Dwg. 4/4

TECH WO 200056421 A1UPTX: 20001128

TECHNOLOGY FOCUS - TEXTILES AND PAPER - Preferred Filter Layer: The filter layer comprises a meltblown non-woven filter layer or a fibrillated fiber non-woven filter layer. The filter layer has an air permeability of 2-400 m<sup>3</sup>/minutes/m<sup>2</sup>, a basis weight of 10-200 g/m<sup>2</sup> and is formed at least in part of heat sealable thermoplastic fiber layers. The filter laminate additionally contains inner diffusion layer(s) (24) formed of a non-woven fibrous web of thermoplastic fibers having an air permeability of 100-1000 m<sup>3</sup>/minute/m<sup>2</sup>. The basis weight of diffusion layer fibrous web is 10-100 g/m<sup>2</sup>. The support layer of filter laminate comprises a fibrous non-woven web having an air permeability of 50-500 m<sup>3</sup>/minute/m<sup>2</sup> and a basis weight of 10-100 g/m<sup>2</sup>. The laminate layers are bonded along peripheral seams and the filter layer comprises an outer surface of heat sealable thermoplastic. The filter layer is a web of **electret** charged fibers of non-conductive thermoplastic resin having a resistivity greater than 10<sup>14</sup> ohm-cm. The non-woven filter web has a basis weight (BW) of less than 100 g/m<sup>2</sup>, preferably less than 60 g/m<sup>2</sup>, an effective fiber diameter (EFD) of less than 5 microns and penetration (PEN) of less than 0.03%. The ratio (I) of BW/(EFDxPEN) is greater than 100, preferably greater than 1000. The filter web has a pressure drop of less than 10 mm water and a charge level of at least 5 muC/m<sup>2</sup>. Preferred Additives: The charged fibers of the non-woven filter web have a charge enhancing additive of 0.2-10 weight% of charge fibers. The charge enhancing additive comprises a hindered amine and thermally stable organic compound or oligomer containing perfluorinated moiety and/or thermally stable organic triazine compounds or oligomers containing at least one nitrogen atom in addition to that of triazine group. Preferred Film Layer: The film layer has a basis weight of 30-200 g/m<sup>2</sup> and the film support layer is a non-woven web having a basis weight of 10-100 g/m<sup>2</sup>. The film layer and the support layer are substantially unbonded except at the seams. The film layer comprises a polypropylene polymer or copolymer film.

ABEX WO 200056421 A1UPTX: 20001128

EXAMPLE - A laminate consisting of piece of spun bond fabric, a rectangular piece of polypropylene film and collar bearing rectangular piece of Media C, positioned with a collar on the outer surface of filter media was prepared. The perimeter of the laminate assembly was ultrasonically welded together. The obtained filter bag was evaluated for filtration performance by vacuum cleaner particle emission test. The

filter bag showed particle emission of 822 particles/cm<sup>3</sup>. The bag was tested for bag loading capacity and was found to have higher dust holding capacity of 78 g.

FS CPI EPI GMPI

FA AB; GI

MC CPI: A12-D04; A12-H04; J01-H

EPI: X27-D04A

PLE UPA 20001128

[1.1] 018; H0317; S9999 S1070-R; S9999 S1183 S1161 S1070; S9999 S1161-R S1070; S9999 S1230 S1229 S1070; S9999 S1241 S1229 S1070  
[1.2] 018; B9999 B3269 B3190; B9999 B3270 B3190; N9999 N6166; B9999 B5254 B5243 B4740; K9938  
[1.3] 018; ND01; K9416; K9949; N9999 N7192 N7023; Q9999 Q7818-R; Q9999 Q7567; Q9999 Q7749 Q7681; Q9999 Q8753; K9676-R; K9698 K9676; N9999 N5721-R; B9999 B4875 B4853 B4740; B9999 B5301 B5298 B5276; Q9999 Q8413 Q8399 Q8366; K9701 K9676  
[1.4] 018; D01 F07-R; D01 D23 D22 D76 D45 F19; A999 A135; A999 A771  
[2.1] 018; R00964 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83; H0000; H0011-R; S9999 S1285-R; P1150; P1343  
[2.2] 018; K9518 K9483; N9999 N6166; K9938  
[2.3] 018; ND01; K9416; K9949; N9999 N7192 N7023; Q9999 Q7818-R; Q9999 Q7567; Q9999 Q7749 Q7681; Q9999 Q8753; K9676-R; K9698 K9676; N9999 N5721-R; B9999 B4875 B4853 B4740; B9999 B5301 B5298 B5276; Q9999 Q8413 Q8399 Q8366; K9701 K9676  
[3.1] 018; F- 7A; A999 A782; A999 A135; H0237-R  
[3.2] 018; D01 D23 D22 D76 D45 F19 N- 5A; A999 A782; A999 A135; H0237-R  
[4.1] 018; P0000  
[4.2] 018; Q9999 Q6666 Q6644; K9518 K9483  
[4.3] 018; ND01; K9416; K9949; N9999 N7192 N7023; Q9999 Q7818-R; Q9999 Q7567; Q9999 Q7749 Q7681; Q9999 Q8753; K9676-R; K9698 K9676; N9999 N5721-R; B9999 B4875 B4853 B4740; B9999 B5301 B5298 B5276; Q9999 Q8413 Q8399 Q8366; K9701 K9676

L2 ANSWER 5 OF 9 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD

AN 2000-548314 [50] WPIX

DNC C2000-163593

TI Air delivery device for use in automotive heating, ventilation, or air conditioning system, has an air delivery fan with rotating air moving elements that establish a higher pressure zone at the air outlet relative to the air inlet.

DC F04 J01

IN HARMS, M; LIRA, R; TANG, Y

PA (MINN) 3M INNOVATIVE PROPERTIES CO

CYC 86

PI US 6102988 A 20000815 (200050)\* 26p B01D033-00

WO 2001010537 A1 20010215 (200111) # EN B01D046-26

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL  
OA PT SD SE SL SZ UG ZW

W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB  
GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU  
LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR  
TT UA UG UZ VN YU ZA ZW

ADT US 6102988 A US 1998-126181 19980730; WO 2001010537 A1 WO 1999-US17614  
19990804

PRAI US 1998-126181 19980730; WO 1999-US17614 19990804

IC ICM B01D033-00; B01D046-26

ICS B01D045-14; B60H003-06; F04D029-30; F04D029-38; F04D029-70

AB US 6102988 A UPAB: 20001010

NOVELTY - An air delivery device has an air delivery fan (1) having at least two rotating air moving elements (4) that intersect the flow of air between the air inlet (2) and the air outlet of a housing and establish a higher pressure zone at the air outlet.

DETAILED DESCRIPTION - An air delivery device has an air delivery fan having at least two rotating air moving elements located between the air inlet and outlet of a housing. The air moving elements intersect the flow of air and establish a higher pressure zone at the air outlet relative to

the inlet. The fan has filter(s) with upstream and downstream filter faces (12, 11). The filter defines primary flow channel(s) and rotates along the same axis of rotation (6) as the air moving elements. The upstream filter face moves into a portion of the airflow (7) through the fan such that this face impacts a portion of the moving airflow in a flow channel, thus permitting the air to flow through the filter into the airflow of another flow channel. The filter further defines airflow passages or inlets allowing unrestricted airflow to the primary flow channels and out to the air outlet. The air filters comprise an **electret** charges filter media (3) having an average Frazier Permeability of at least 2000 m<sup>3</sup>/h/m<sup>2</sup>. An INDEPENDENT CLAIM is also included for a method of filtering particles from a moving airstream.

USE - Used in automotive heating, ventilation, or air conditioning system.

ADVANTAGE - The device shows little or no pressure drop over its lifetime, no matter how long it is in use.

DESCRIPTION OF DRAWING(S) - The diagram is a perspective view of a filter.

Air delivery fan 1

Air inlet 2

Filter media 3

Air moving elements 4

Axis of rotation 6

Airflow 7

Downstream and upstream faces 11, 12

Dwg.1/10

TECH US 6102988 A UPTX: 20001010

TECHNOLOGY FOCUS - TEXTILES AND PAPER - Preferred Component: The filter comprises a nonwoven fibrous filter web (preferably melt blown microfibers or split fibrillated charged fibers) formed at least in part of **electret** charged fibers. The filter web includes sorbent particulates or fibers, or additional functional layers (preferably particle or sorptive filtration layers). Secondary flow channels are formed by pleating of the filter media. Preferred Property: The filter media has an average Frazier Permeability of 2000-8000 (preferably 3000-6000) m<sup>3</sup>/h/m<sup>2</sup>.

TECHNOLOGY FOCUS - MECHANICAL ENGINEERING - Preferred Component: The air moving elements comprise at least two blades extending radially outward from the axis of rotation to form an annular fan.

FS CPI

FA AB; GI

MC CPI: F01-E02; F02-C01; F04-E05; J01-G03

L2 ANSWER 6 OF 9 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD

AN 2000-270987 [23] WPIX

DNC C2000-082587

TI Filtration medium for e.g. ventilation and air conditioning systems, respiratory filters, vacuum cleaners, or room air cleaners has non-woven filter web of **electret** charged fibers of non-conductive thermoplastic resin.

DC A88 J01

IN ANGADJIVAND, S; KINDEMAN, R; WU, T; ABOLHASSAN, S; WU, T T  
(MINN) MINNESOTA MINING & MFG CO; (MINN) **3M INNOVATIVE PROPERTIES**

CO

CYC 84

PI WO 2000013765 A1 20000316 (200023)\* EN 43p B01D039-04

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL

OA PT SD SE SZ UG ZW

W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD  
GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV  
MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT  
UA UG UZ VN YU ZW

AU 9932933 A 20000327 (200032) B01D039-04

US 6123752 A 20000926 (200051) B03C003-28

ADT WO 2000013765 A1 WO 1999-US3188 19990216; AU 9932933 A AU 1999-32933  
19990216; US 6123752 A US 1998-146627 19980903

FDT AU 9932933 A Based on WO 200013765

PRAI US 1998-146627 19980903

IC ICM B01D039-04; B03C003-28

ICS B01D039-16

AB WO 200013765 A UPAB: 20000516

NOVELTY - The high efficiency filtration medium comprises a non-woven filter web of **electret** charged fibers of a non-conductive thermoplastic resin having a resistivity of greater than 10<sup>14</sup> ohm-cm.

DETAILED DESCRIPTION - The high efficiency filtration medium comprises a non-woven filter web of **electret** charged fibers of a non-conductive thermoplastic resin having a resistivity of greater than 10<sup>14</sup> ohm-cm. The nonwoven filter web has a basis weight (BW) of less than 60 g/m<sup>2</sup>, an effective fiber diameter (EFD) of less than 5  $\mu$ m and a penetration (PEN) of less than 0.03%. The ratio (I) of BW/(EFD  $\times$  PEN) is greater than 200.

USE - The high efficiency filtration medium is used in environments that require very clean conditions like surgical operating rooms or clean rooms. It is also used in heating, ventilation and air conditioning systems, respiratory filters, vacuum cleaners and room air cleaners.

ADVANTAGE - The medium provides a high efficiency particulate air (HEPA) level performance filter medium at ever increasing efficiencies at lower pressure drops, lower basis weights and lower thickness ranges in form which can be easily pleated and joined to other functional layers.

Dwg.0/3

TECH WO 200013765 A1UPTX: 20000516

TECHNOLOGY FOCUS - TEXTILES AND PAPER - Preferred Web: The non-woven filter web comprises a web of melt blown fibers and the charged fibers of non-woven filter web contain a charge enhancing additive. The filtration medium also comprises a support web.

Preferred Composition: The charged fibers of non-woven filter web comprises 0.2-10% enhancing additive.

Preferred Condition: The filter web has a thickness of less than 0.15 cm, preferably 0.10 cm, a pressure drop of less than 10 mm water (H<sub>2</sub>O), preferably 10 mm HO, and a charge level of at least 5  $\mu$ m<sup>2</sup>, preferably at least 6 microC/m<sup>2</sup>. The filter web percent penetration is less than 0.01% and its web basis weight is less than 50 g/m<sup>2</sup>. The EFD is less than 4.5  $\mu$ m, preferably less than 4  $\mu$ m, and the filter web ratio is greater than 400, preferably 1000. The penetration ratio of the **electret** discharged medium to the charged medium is greater than 10000.

TECHNOLOGY FOCUS - POLYMERS - Preferred Component: The filter web fibers are formed from a non-conductive polyolefin resin or blend, or charged fibers of polypropylene, poly(4-methyl-1-pentene) or blends. The charge enhancing additive comprises a thermally stable organic compounds or oligomer containing at least one perfluorinated moiety and/or thermally stable organic triazine compounds, or oligomers containing at least one nitrogen atom in addition to triazine group.

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Component: The charge enhancing additive comprises hindered amine.

FS CPI

FA AB

MC CPI: A04-E10; A05-J02; A08-M09A; A09-A03; A12-H04; A12-S05G; J01-G03;  
J01-H

PLE UPA 20000516

- [1.1] 018; G0033-R G0022 D01 D02 D51 D53; H0000; H0011-R; H0317; S9999  
S1183 S1161 S1070; P1150
- [1.2] 018; R00964 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83;  
H0000; S9999 S1183 S1161 S1070; H0317; P1150; P1343
- [1.3] 018; R15485 G0044 G0033 G0022 D01 D02 D12 D10 D53 D51 D58 D86;  
H0000; S9999 S1183 S1161 S1070; H0317; P1150
- [1.4] 018; B9999 B3270 B3190; B9999 B5254 B5243 B4740; N9999 N6020  
N6008; B9999 B5243-R B4740; K9745-R
- [1.5] 018; ND01; Q9999 Q7567
- [1.6] 018; D01 D22-R D45 F19; A999 A135; B9999 B4682 B4568; A999 A771
- [1.7] 018; D01 F07-R; A999 A135; A999 A771; B9999 B4682 B4568
- [2.1] 018; P0500 F- 7A; A999 A135; A999 A782

[2.2] 018; N- 5A; P1536-R D01 D23 D22 D45 F19; A999 A135; A999 A782  
[2.3] 018; B9999 B4682 B4568

L2 ANSWER 7 OF 9 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD  
AN 2000-160765 [14] WPIX  
DNN N2000-119939 DNC C2000-050220  
TI Fluorinated **electret** for use in aerosol filters, air filters, face masks, respirators and as electrostatic elements in microphones, headphones and recorders.  
DC A18 A23 A88 J01 L03 P41 V06 X25  
IN ANGADJIVAND, S A; JONES, M E; LYONS, C S; REDMOND, D B; SOLOMON, J L  
PA (MINN) 3M INNOVATIVE PROPERTIES CO  
CYC 85  
PI WO 2000001737 A1 20000113 (200014)\* EN 32p C08F008-24  
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL  
OA PT SD SE SL SZ UG ZW  
W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB  
GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU  
LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR  
TT UA UG UZ VN YU ZA ZW  
AU 9947002 A 20000124 (200027) C08F008-24  
ADT WO 2000001737 A1 WO 1999-US13917 19990621; AU 9947002 A AU 1999-47002  
19990621  
FDT AU 9947002 A Based on WO 200001737  
PRAI US 1998-109497 19980702  
IC ICM C08F008-24  
ICS B03C003-28  
AB WO 200001737 A UPAB: 20000323  
NOVELTY - An **electret** with a surface modified polymeric article having surface fluorination produced by fluorinating a polymeric article.  
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following: (I) method of making an **electret** by fluorinating a polymeric article and charging it, (II) filter comprising the **electret**, and (III) respirator comprising the filter.  
USE - In aerosol filters, air filters, face masks, respirators and as electrostatic elements in electroacoustic devices like microphones, headphones and electrostatic recorders.  
ADVANTAGE - The **electret** exhibits a higher oily mist resistance when compared to the prior art.  
Dwg.0/3  
TECH WO 200001737 A1UPTX: 20000320  
TECHNOLOGY FOCUS - POLYMERS - Preferred **Electret**: The non woven melt-blown micro fibrous web polymer has 50 atomic % preferably about 45 atomic % fluorine as detected by electron spectroscopy for chemical analysis. The CF3:CF2 ratio of the polymer is 0.25 preferably 0.45, especially greater than about 0.9 according to the Method for Determining CF3:CF2. It has a Quality Factor of 0.25 preferably 0.5, especially about 1/mm H<sub>2</sub>O. It is polycarbonate, polyester, halogenated polyvinyl, polystyrene and/or polyolefin preferably polypropylene and/or poly-(4-methyl-1-pentene) especially polypropylene. The fiber diameter is 1-50 preferably 3-30, especially 7-15  $\mu\text{m}$ . The micro fibers are made from resin having resistivity less than 10<sup>14</sup> ohm-cm. The web weighs 10-100 g/m<sup>2</sup> with a thickness of 0.25-20 mm.  
TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Method: The polymer is fluorinated in a controlled atmosphere free of oxygen. It is contacted with gaseous fluorine species of (hydro) fluorocarbons, fluorinated sulfur, fluorinated nitrogen and/or elemental fluorine preferably elemental fluorine. This is in presence of alternating current (AC), corona discharge at atmospheric pressure. The charging is by impinging jets of water or water droplets stream onto the fluorinated polymer under pressure. The charging is preferably by a direct current (DC) corona discharge and the **electret** is then dried.  
ABEX WO 200001737 A1UPTX: 20000320  
SPECIFIC COMPOUNDS - The fluorinating species is C<sub>5</sub>F<sub>12</sub>, C<sub>2</sub>F<sub>6</sub>, CF<sub>4</sub>, hexafluoropropylene, SF<sub>6</sub> and/or NF<sub>3</sub>.

**EXAMPLE -** A polyester staple fiber web having basis weight 200 g/m<sup>2</sup> was fluorinated in 1 vol.% C2F6 in helium atmosphere at AC corona energy of 34 J/cm<sup>2</sup>. The CF3:CF2 ratio was 0.99. This was then hydrocharged by deionized water spray at 90 psi. The web was then vacuum slotted to remove excess water and dried. The quality factor of the web was 1.03.

FS CPI EPI GMPI  
FA AB  
MC CPI: A10-E04A; A12-H04; J01-K02; L03-B03  
EPI: V06-B02; V06-C; V06-E03; X25-F03B  
PLE UPA 20000323  
[1.1] 018; P0862 P0839 F41 F44 D01 D63; S9999 S1183 S1161 S1070; M9999 M2391; M9999 M2255 M2222; L9999 L2391; L9999 L2255 L2222; S9999 S1241 S1229 S1070  
[1.2] 018; S9999 S1183 S1161 S1070; M9999 M2391; M9999 M2255 M2222; L9999 L2391; L9999 L2255 L2222; S9999 S1241 S1229 S1070; P0839-R F41 D01 D63; S9999 S1092 S1070  
[1.3] 018; G0022-R D01 D51 D53 D69 7A-R; S9999 S1183 S1161 S1070; M9999 M2391; M9999 M2255 M2222; L9999 L2391; L9999 L2255 L2222; S9999 S1241 S1229 S1070; H0000  
[1.4] 018; R00708 G0102 G0022 D01 D02 D12 D10 D19 D18 D31 D51 D53 D58 D76 D88; S9999 S1183 S1161 S1070; M9999 M2391; M9999 M2255 M2222; L9999 L2391; L9999 L2255 L2222; S9999 S1241 S1229 S1070; H0000; P1741; P1752  
[1.5] 018; G0033-R G0022 D01 D02 D51 D53; S9999 S1183 S1161 S1070; M9999 M2391; M9999 M2255 M2222; L9999 L2391; L9999 L2255 L2222; S9999 S1241 S1229 S1070; H0000; H0011-R; P1150  
[1.6] 018; R00964 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83; S9999 S1183 S1161 S1070; M9999 M2391; M9999 M2255 M2222; L9999 L2391; L9999 L2255 L2222; S9999 S1241 S1229 S1070; H0000; P1150; P1343  
[1.7] 018; R15485 G0044 G0033 G0022 D01 D02 D12 D10 D53 D51 D58 D86; S9999 S1183 S1161 S1070; M9999 M2391; M9999 M2255 M2222; L9999 L2391; L9999 L2255 L2222; S9999 S1241 S1229 S1070; H0000; P1150  
[1.8] 018; ND01; ND07; Q9999 Q7567; N9999 N7227 N7023; B9999 B5232 B4740; B9999 B5492 B5403 B5276; K9427; B9999 B3270 B3190; B9999 B5254 B5243 B4740; B9999 B5243-R B4740; Q9999 Q8026 Q7987; Q9999 Q6611-R; Q9999 Q7501  
[1.9] 018; D09 F- 7A; R00976 G0022 D01 D12 D10 D51 D53 D59 D69 D83 F- 7A; H0226  
[1.10] 018; D01 D11 D10 D50 D69 D85 F- 7A; H0226  
[1.11] 018; D01 D11 D10 D50 D82 D69 F- 7A; H0226  
[1.12] 018; D01 D11 D10 D50 D69 D81 F- 7A; H0226  
[1.13] 018; D00 S- 6A F- 7A; H0226  
[1.14] 018; D00 N- 5A F- 7A; H0226

L2 ANSWER 8 OF 9 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD  
AN 1999-371145 [31] WPIX  
DNN N1999-276704 DNC C1999-109611  
TI Multilayer molded respirator containing active sorbent particle with fibrous layer held in retainers.

DC A32 A83 A96 F04 F07 K02 P21 P35 P73

IN BARRETT, L W; HARPER, R C; SPRINGETT, J E

PA (MINN) MINNESOTA MINING & MFG CO; (MINN) 3M INNOVATIVE PROPERTIES

CO

CYC 82

PI WO 9928542 A1 19990610 (199931)\* EN 50p D04H001-00

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL  
OA PT SD SE SZ UG ZW

W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE  
GH GM GW HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG  
MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG  
UZ VN YU ZW

AU 9871178 A 19990616 (199945) D04H001-00

US 6102039 A 20000815 (200041) A62B007-10

EP 1036229 A1 20000920 (200047) EN D04H001-00

R: DE ES FR GB IT NL

BR 9815117 A 20001010 (200055) D04H001-00

ADT WO 9928542 A1 WO 1998-US7529 19980413; AU 9871178 A AU 1998-71178  
19980413; US 6102039 A US 1997-982119 19971201; EP 1036229 A1 EP  
1998-918213 19980413, WO 1998-US7529 19980413; BR 9815117 A BR 1998-15117  
19980413, WO 1998-US7529 19980413

FDT AU 9871178 A Based on WO 9928542; EP 1036229 A1 Based on WO 9928542; BR  
9815117 A Based on WO 9928542

PRAI US 1997-982119 19971201

IC ICM A62B007-10; D04H001-00  
ICS A41D013-00; A62B023-02; B01D039-16; B32B005-26; D04H013-00

AB WO 9928542 A UPAB: 20000516

NOVELTY - Respirator (10) contains active sorbent particle containing fibrous layer. The fibrous layer is held between tacky retaining layers.

DETAILED DESCRIPTION - Respirator (10) includes air permeable layer (24) containing sorbent particles and sandwiched between air permeable particle retaining layers (22, 26). The particle containing layer is stretch into a cup like shape with some of its fibres sufficiently tacky after forming by themselves into a particle free web and cooled so that the web will adhere to itself.

An INDEPENDENT CLAIM is also included for producing a respirator by:

- (1) forming a particle containing layer from thermoplastic fibres and particles, the fibres being sufficient tacky after being formed into the web and cooled, the web will adhere to itself;
- (2) sandwiching the particle containing layer between particle retaining layers; and
- (3) forming the layers into a cup like shape, stretching the particle containing layer without it tearing.

Preferred Features: One or more of the layers incorporates an **electret** charge. The particle containing layer, before shaping has at least 25 (50)% elongation to break in both machine and cross direction. The respirator when exposed to a flow rate of 20 liters per minute atmosphere containing 60 ppm n-hexane at 50% relative humidity and 35 deg. C, at least 60 (90) minutes will elapse before 10 ppm hexane can be detected in the respirator. The particles comprise carbon or alumina.

USE - Used as a disposable cub shaped multi layer fibrous respirator, for use in hazardous environments in all industries

ADVANTAGE - Eliminates the need for preforms and associated machinery and process steps required in prior art respirator manufacture.

DESCRIPTION OF DRAWING(S) - The drawing shows a cross-section through the respirator.

respirator 10

air permeable particle retaining layer 22, 26

air permeable particle containing layer 24

Dwg.2/6

TECH WO 9928542 A1 UPTX: 20001114

TECHNOLOGY FOCUS - POLYMERS - Preferred Layers: The particle containing layer comprises 10 micrometers diameter fibres of stretchable block copolymers, an acrylate, a polyolefin or a polyurethane, and is pillowed before moulding. The other layers comprise a polyalphaolefin, metallocene catalysed polyolefin or a polyurethane.

FS CPI GMPI

FA AB; GI

MC CPI: A12-C02; F04-C06; K02-B

PLE UPA 19990806

- [1.1] 018; H0317; H0044-R H0011; S9999 S1070-R; S9999 S1183 S1161 S1070
- [1.2] 018; G0260-R G0022 D01 D12 D10 D26 D51 D53; H0000; H0011-R; S9999 S1070-R; S9999 S1183 S1161 S1070; P0088
- [1.3] 018; P1592-R F77 D01; S9999 S1070-R; S9999 S1183 S1161 S1070
- [1.4] 018; ND01; Q9999 Q7567; ND07; N9999 N7192 N7023; Q9999 Q7818-R; N9999 N5914-R; N9999 N5856; B9999 B5152-R B4740; Q9999 Q7294; Q9999 Q7090 Q7056; K9676-R; K9483-R
- [1.5] 018; B9999 B5301 B5298 B5276; N9999 N5812-R; B9999 B5254 B5243 B4740; B9999 B3883 B3838 B3747
- [2.1] 018; G0033-R G0022 D01 D02 D51 D53; H0000; H0011-R; S9999 S1070-R; S9999 S1183 S1161 S1070; P1150
- [2.2] 018; ND01; Q9999 Q7567; ND07; N9999 N7192 N7023; Q9999 Q7818-R; N9999 N5914-R; N9999 N5856; B9999 B5152-R B4740; Q9999 Q7294;

[2.3] Q9999 Q7090 Q7056; K9676-R; K9483-R  
018; B9999 B5301 B5298 B5276; N9999 N5812-R; B9999 B5254 B5243  
B4740; B9999 B3883 B3838 B3747  
[2.4] 018; D01 D13-R D51-R D62 D61 D68 Gm; C999 C033 C000; C999 C293

L2 ANSWER 9 OF 9 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD

AN 1999-254959 [21] WPIX

DNC C1999-074620

TI **Electret** filter webs comprising a polymer and a performance-enhancing additive.

DC A17 A23 A32 A35 A85 A88 E13 F01 F02 F04 F06 F08 J01

IN JONES, M E; MEI, B Z; ROUSSEAU, A D

PA (MINN) MINNESOTA MINING & MFG CO; (MINN) **3M INNOVATIVE PROPERTIES**

CO

CYC 81

PI WO 9916533 A1 19990408 (199921)\* EN 59p B01D039-08

RW: AT BE CH DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA  
PT SD SE SZ UG ZW  
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE  
GH GM GW HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG  
MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG  
UZ VN YU ZW

AU 9861348 A 19990423 (199935) B01D039-08

US 6068799 A 20000530 (200033) B29C035-16

EP 1019174 A1 20000719 (200036) EN B01D039-08

R: DE ES FR GB IT NL

BR 9812593 A 20000801 (200043) B01D039-08

CZ 20000001180 A3 20000913 (200054) B01D039-08

CN 1272803 A 20001108 (200114) B01D039-08

ADT WO 9916533 A1 WO 1998-US1457 19980202; AU 9861348 A AU 1998-61348  
19980202; US 6068799 A US 1997-941864 19971001; EP 1019174 A1 EP  
1998-906004 19980202, WO 1998-US1457 19980202; BR 9812593 A BR 1998-12593  
19980202, WO 1998-US1457 19980202; CZ 20000001180 A3 WO 1998-US1457  
19980202, CZ 2000-1180 19980202; CN 1272803 A CN 1998-809737 19980202

FDT AU 9861348 A Based on WO 9916533; EP 1019174 A1 Based on WO 9916533; BR  
9812593 A Based on WO 9916533; CZ 20000001180 A3 Based on WO 9916533

PRAI US 1997-941864 19971001

IC ICM B01D039-08; B29C035-16

ICS B01D039-16; D01F001-10

AB WO 9916533 A UPAB: 19990603

NOVELTY - A method of making an **electret** article comprises:

(a) forming a heated, molten blend of a polymer and a performance-enhancing additive;

(b) shaping the melt;

(c) quenching the shaped material; and

(d) annealing and charging the quenched material to form an **electret**.

USE - For making an **electret** comprising a nonwoven web containing melt-blown fibers (claimed) used as a filter for removing particles from a gas, especially aerosols from air, e.g. in respirators such as face masks, home and industrial air conditioners, furnaces, air cleaners, vacuum cleaners, medical and air line filters and air cleaning systems in vehicles and electronic equipment, e.g. computers and disk drives.

ADVANTAGE - The additives provide **electret** filters with superior oily mist loading performance, charge stability in the presence of liquid aerosols, decreased penetration of aerosols or particulates and a small pressure drop across the filter.

DESCRIPTION OF DRAWING(S) - The figure shows DOP loading performance (minimum challenge, mg) versus unannealed crystallinity index for a polypropylene nonwoven filter web.

Dwg.2/17

TECH WO 9916533 A1 UPTX: 19990603

TECHNOLOGY FOCUS - POLYMERS - Preferred Method: The melt is shaped by extrusion through a die to form an extrudate, which is quenched as it emerges from the die. The melt may be extruded under melt-blowing conditions. The product is quenched fibers, which may be collected as a

nonwoven web. The blend comprises 95-99.5 wt.% polypropylene and 0.5-5 wt.% of a fluorochemical additive. Before annealing, quenched fibers have a crystallinity index of less than 0.3. Annealing is performed at 130-150 degrees C and the blend is extruded at 0.5-1.4 pound/hour/inch of die. The web is charged by corona treatment and annealing is performed after charging. The **electret** has a thermally stimulated discharge current (TSDC) spectrum that shows a peak of width at half peak height of less than 25 degrees C, as measured by TSDC test procedure 3.

**TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Additive:** The additive is a fluorochemical. Preferred are (I)-(III), i.e. additives A, B and C described in U.S. Pat. No. 5,411,576: The fluorochemical has a melting point above polypropylene and below the extrusion temperature.

ABEX WO 9916533 A1 UPTX: 19990603

**SPECIFIC COMPOUNDS** - The polymer is polypropylene (preferred), poly(4-methyl-1-pentene, linear low density polyethylene, polystyrene, polycarbonate, polyester or a mixture.

**EXAMPLE** - A nonwoven filter web was prepared by extruding Escorene 3055G (RTM: polypropylene) containing 1.1 wt.% (I) at 50 pounds/hour under melt-blown conditions with a melt temperature of 288 degrees C and a 48 inch drilled orifice die. The extrudate was quenched using a spray bar with 13 flat fan nozzles spaced 4 inches apart and mounted 0.75 inch from the die face and 2.5 inches below the molten polymer streams. Each nozzle was rotated 10 degrees from the cross web direction so that the fans of water did not interfere with each other and the water pressure was set at the minimum level that would maintain a uniform spray. The web was annealed in an oven at 150 degrees C with a dwell time of 4.5 minutes then corona treated using a high-voltage electrical field with a corona current of  $2.6 \times 10^{-3}$  mA / cm of corona source length and a residence time of 15 seconds. The web had a basis weight of 71 g / m<sup>2</sup>, a thickness of 1.3 mm and a pressure drop of 6.6 mm water at a face velocity of 13.8 cm / second. Weighed pairs of discs cut from the web, stacked one on top of the other, were mounted in a holder and a 6.0 inch circle was exposed to a dioctyl phthalate (DOP) aerosol at a face velocity of 7.77 cm / second. The tests were continued until there was a clear trend for DOP penetration or until an exposure to 200 mg of DOP. The pair of discs was then weighed again and a minimum at challenge value was calculated, i.e. the total mass of DOP incident on and through the sample at the point where the DOP percent penetration reached its minimum value (higher value = better DOP loading performance). The crystallinity index of the polypropylene was determined for samples cut from 6 positions across the web after annealing and for samples cut from positions 1, 4 and 6 before annealing. The figure shows a plot of the minimum challenge values (mg) versus unannealed crystallinity index for positions 1, 4 and 6, demonstrating that the lower the crystallinity index of the web before annealing, the greater the minimum at challenge value. The crystallinity index of the web in the 6 positions after annealing was 0.57, 0.53, 0.52, 0.59, 0.51 and 0.47 respectively and the minimum challenge values were 149, 83, 78, 83, 150 and 340 respectively, showing that there is no correlation between the crystallinity index of the annealed web and DOP loading performance.

FS CPI  
FA AB; GI  
MC CPI: A11-B02; A11-C04E; A12-E; F01-C07A; F02-C02; F03-E; F04-E; J01-H  
PLE UPA 19990609  
[1.1] 018; R00964 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83;  
R00326 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D82; R00708  
G0102 G0022 D01 D02 D12 D10 D19 D18 D31 D51 D53 D58 D76 D88;  
H0000; S9999 S1070-R; S9999 S1183 S1161 S1070; S9999 S1387;  
P1150 ; P1741 ; P1161 ; P1343 ; P1752  
[1.2] 018; R15485 G0044 G0033 G0022 D01 D02 D12 D10 D53 D51 D58 D86;  
H0000; S9999 S1070-R; S9999 S1387; S9999 S1183 S1161 S1070;  
P1150  
[1.3] 018; R00326 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D82;  
H0011-R; P1252; S9999 S1387; S9999 S1070-R; P1150  
[1.4] 018; P0839-R F41 D01 D63; S9999 S1070-R; S9999 S1183 S1161  
S1070; S9999 S1387  
[1.5] 018; P0862 P0839 F41 F44 D01 D63; S9999 S1387; S9999 S1070-R;

S9999 S1183 S1161 S1070  
[1.6] 018; ND01; ND07; N9999 N5823 N5812; N9999 N5970-R; N9999 N6188  
N6177; N9999 N7294; Q9999 Q7567; N9999 N6202 N6177; N9999 N6020  
N6008; N9999 N6962-R; B9999 B4773-R B4740; K9745-R; Q9999 Q7090  
Q7056; Q9999 Q7749 Q7681; Q9999 Q8026 Q7987; Q9999 Q9289 Q9212;  
Q9999 Q9449 Q8173; Q9999 Q8855-R  
[1.7] 018; D01 D11 D10 D19 D18 D23 D22 D32 D33 D75 D76 D41 D42 D50 D95  
F64 D69 F77 F- 7A; A999 A748